WEEKLY REPORTS

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
Bureau of Plant Industry
United States Department of Agriculture

(Not for publication without the prior consent of this Division.)

Vol. XXXVIII January 4 and 11, 1936 No. 1

Belle Fourche

During the week ending January 11 the maximum temperature was 41 and the minimum -16°. The precipitation amounted to 0.14 inch.

On January 8 the ninth annual Lamb Feeders' Day was held at the Field Station. In addition to the 700 lambs of 7 lots, 100 to the lot, fed on different rations here at the station, 225 lambs fed by 4-H Club members were on exhibition. There were 15 boys in this club, each boy feeding 15 lambs. The results were tabulated showing the kind of feed used, gains made, and the total cost of gains. The lambs were weighed every 30 days. Considerable aid was given to these boys in the care and feeding of the lambs. During the 100 days on feed not a single lamb was lost. A lamb dinner was served in the Farm Picnic building at noon, followed by a program. Over 160 people attended this meeting. Much interest was shown in the work, particularly in the 4-H Club.

The first Tri-State 4-H Lamb Club Show will be held at Sioux Falls January 14-16. All the 4-H Club lambs were shipped to Sioux Falls for this show, which is sponsored by the Sioux Falls Stockyards, and liberal premiums are provided. Fourteen of the 4-H Club boys will attend. The lambs will be sold at auction on the last day of the show.

The following people visited the station during the week: S. H. Hastings, Washington, D. C.; H. M. Jones, State 4-H Club Leader; I. B. Johnson, Extension Animal Husbandman, State College, Brookings, S. D.; Dr. L. D. Frederick, Swift & Co., Chicago; Lee McMahon and Mr. Lupke, commission men, Sioux City, Iowa.

Beyer Aune.

Huntley

During the two-week period ending January 11 the maximum temperature was 52 and the minimum was -16°. There was 0.52 inch of precipitation. Comparatively mild and open weather continued during this period. One or two light snowfalls have occurred, but the soil is still dry and winter grains are in poor condition. A total rainfall in December of 0.48 inch is only about one half the normal for this month.

Some outside work has been possible during most of the winter up to this time, and men from the C.C.C. camp at Ballantine have been employed in making repairs to the project irrigation system and in constructing a dam for the high line reservoir at Anita.

Due to weather conditions the demand for feed has decreased, and the farm price of hay has dropped to $8 or $9 a ton. Butterfat is 33 cents a pound and eggs 35 cents a dozen. The demand for Great Northern

Huntley (cont'd)

beans has been slow, and the price has remained at $2 to $2.50 a hundred pounds.

Station activities have included the routine work of caring for livestock and hauling coal from the mines at Roundup.

Dan Hansen.

Newlands

During the two-week period ending January 11 the average maximum temperature was 47.8, with a maximum of 60; the average minimum was 23.2, with a minimum of 14°. The mean temperature was 35.5°. The wind velocity averaged 3.43 miles an hour. There was 0.14 of an inch of precipitation.

The mean temperatures during the past two weeks have been above normal for this time of the year when the ground is generally frozen to a depth that makes it impossible to carry on such field work as leveling or plowing. However, so far this winter there have been only a few days when such work could not be done. During the latter stages of the leveling operations on the plots of field A it has sometimes been necessary to wait until midday for the shallow frozen crust to thaw.

There have been heavy snowstorms recently in the Sierra Nevada Mountains. It is from such snows that the supply of water in the Lahontan Reservoir is obtained. Thus any heavy snows are welcomed by the farmers of the project.

The station work has consisted of burning weeds, building new irrigation structures, hauling manure, and leveling land.

E. W. Knight.

Prosser

During the week ending January 4 the maximum temperature was 54, mean maximum 47, minimum 29, mean minimum 33, and the greatest daily range 22°. The mean hourly wind velocity was 3.44 miles. The total precipitation of rain and snow amounted to 1.15 inches. The precipitation during the week exceeded the total for the month of December by 0.02 of an inch.

W.P.A. laborers have begun excavating an open drain ditch in the draw east of the office building. Most of the trees marked for removal have been taken out and splitting posts is well under way.

During the week ending January 11 the maximum temperature was 52, mean maximum 45, minimum 32, mean minimum 34, and the greatest daily range 17°. The total precipitation was 0.46 of an inch. The mean hourly wind velocity was 2.46 miles. Snow on Snoqualmie Pass in the Cascade Mountains was 86 inches deep at the end of the week.

W.P.A. workers have completed the removal of trees and the splitting of posts. Most of the men are engaged now in digging a drainage ditch through the draw east of the station buildings.

All livestock prices have increased a little during the week.

Carl A. Larson.

Scotts Bluff

The average maximum temperature during the week ending January 4 was 38, with a maximum of 45; the average minimum was 14, with a minimum of 11°. The daily average wind movement was 7.0 miles an hour. There was 0.01 inch of precipitation in the form of snow. A light dust storm occurred on January 2.

Station activities consisted of removing fences on rotations 65-a and b and 41-8, hauling hay for livestock, repairing water line on lawn, repairing garage and horse corral.

The Acting Superintendent attended meetings of the American Association for the Advancement of Science held at St. Louis December 30 to January 7.

The sugar content of western Nebraska beets rose to the highest percentage in the last five years.

Butterfat is selling for 32 cents a pound and eggs for 30 cents a dozen.

During the week ending January 11 the average maximum temperature was 34, with a maximum of 45; the average minimum was 9, with a minimum of -4°. The daily wind movement averaged 7.9 miles an hour. There was 0.02 inch of precipitation in the form of snow.

In addition to the routine of caring for the livestock, station work consisted of pruning the dead wood from the windbreaks.

Preliminary reports as to the present snowfall in the Pathfinder Dam watershed are encouraging.

Dr. J. S. Anderson, State Veterinarian, stated that Scotts Bluff County has been declared free of cattle tuberculosis.

Charles M. Kearney, of Morrill, was reelected President of the National Sugar Beet Growers' Association.

Butterfat is selling for 40 cents a pound and eggs for 23 cents a dozen.

Lionel Harris.

Umatilla

Climatic conditions during the three-week period ending January 4:

Week Ending	Temperatures			Precipitation, inch	Mean wind velocity, miles per hour
	Maximum	Minimum	Mean		
December 21	33	25	28.1	0.0	2.3
December 28	47	24	31.1	.59	1.9
January 4	56	33	42.4	1.07	8.3

Work during the period covered by this report consisted of hauling manure, tearing down turkey lots, fencing, cleaning corrals, and burning weeds.

The last of the 1935 turkeys were killed and delivered to the Eastern Oregon Turkey Growers' Association pool. Of 369 turkeys marketed, 94.3 percent graded prime and the rest graded choice.

The total precipitation during 1935 was 5.58 inches, which, with two exceptions, was the lowest precipitation in our 26-year record. The average is 8.13 inches. Were it not for the precipitation of the last

Umatilla (cont'd)

week, the year would have been the driest on record. The Cold Springs Reservoir on January 1 held 4,250 acre-feet as compared with a normal of around 20,000 at that date in other years. The feed canal was up to full capacity on January 1 for the first time this season. During the last two weeks considerable snow has accumulated in the mountains, but it is still not up to normal.

Official visitors were M. R. Lewis and A. S. King, Extension Soil Specialist.

H. K. Dean.

W E E K L Y R E P O R T S

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
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Vol. XXXVIII January 18 and 25, 1936 No. 2

Newlands

During the two-week period ending January 25 the average maximum temperature was 50.3, with a maximum of 61; the average minimum was 20.2, with a minimum of 12°. The mean temperature was 35.3°. The wind velocity averaged 3.04 miles per hour. There was no precipitation.

The continued snowfall in the Sierra Nevada Mountains indicates a plentiful supply of water for the next irrigation season. To date the greatest amount of snow on the ground at any one time this winter has been recorded at 110 inches. These measurements were made at a recording station on the summit of the mountains. This snow was followed by a cold rain and freezing temperatures. At present there is firmly packed snow to a depth of about 87 inches.

The amount of work that has been done by two camps of C.C.C. boys in cleaning the irrigation distributing system should assure a more economical distribution of water by eliminating much of the losses due to weed-crowded canals and leaking structures.

Dr. A. C. Hildreth, of the Cheyenne Horticultural Field Station, located at Cheyenne, Wyoming. visited the station on January 19. This visit was greatly appreciated because Dr. Hildreth was able to give us some valuable information regarding flowers and shrub varieties that might be adapted to this locality. Also his ideas regarding landscaping, etc. will be of great assistance in future plans for beautification.

At the station land is being manured and disked for early seeding of grain. The leveling of the entire new series on the north side of the station finally has been completed. Within a couple of weeks it should be seeded. This marks the completion of a large land leveling program that was started two years ago as a relief project.

E. W. Knight.

Prosser

During the week ending January 18 the maximum temperature was 54, mean maximum 48.4, minimum 28, mean minimum 33, and the greatest daily range 18°. The mean hourly wind velocity was 2.53 miles. The precipitation was 0.26 of an inch, most of which fell in the form of snow.

Station activities during the week included hauling manure on rotation plots and work in the laboratory. The moderate weather caused many farmers in the district to begin plowing.

During the week ending January 25 the maximum temperature was 34, mean maximum 33.5, minimum 27, mean minimum 28.3, and the greatest daily

Prosser (cont'd)

range 5°. The mean hourly wind velocity was 1.29 miles.

Less than 500,000 acre-feet of water is stored in the reservoirs of the Yakima irrigation project as compared with 700,000 acre-feet last year at this time. However, the snow in the mountains is sufficient to prevent a water shortage in the valley during the coming season.

At the end of the week the crew of W.P.A. workers was reduced to 7. There were 14 workmen at the beginning of the project.

The entire week was spent in the laboratory making water and soil analyses.

Carl A. Larson.

Scotts Bluff

During the week ending January 18 the average maximum temperature was 37, with a maximum of 58; the average minimum was 16, with a minimum of -9°. The daily wind movement averaged 11.1 miles an hour. There was 0.16 inch of precipitation in the form of snow.

The heavy snowfall in the high mountain regions that provide waters for the North Platte River indicate a much greater supply of water for irrigators this year than last. It was reported that the amount of snow on December 31 in the upper Platte basin was greater than it has been since 1922.

Station activities, in addition to the regular routine, consisted of building fences on the plots for next season's pasturing operations.

J. P. Ross, County Agent, has announced that Nebraska farmers now face a shortage of seed corn which may prove to be the most serious in the last 20 years.

Sugar beet workers from five States met in Denver on January 18 for a conference designed to consolidate 39 labor groups into a strong union organization. Ultimate plans call for union with the American Federation of Labor.

The average maximum temperature during the week ending January 25 was 36, with a maximum of 49; the average minimum was 15, with a minimum of -4°. The daily wind movement averaged 8.4 miles an hour. There was 0.6 inch of precipitation.

The second planting of a winter planting test of garden crops was made on January 24. Onions, carrots, parsnips, red beets, radishes, lettuce, peas, and beans are included in this test. A light rain and snowfall barely moistened the top soil just before planting. When the seed was planted the temperature was at 12°, but shortly afterwards a light snow covered the ground and during the next two days the temperature dropped below zero.

The chicken house directly west of the office buildings is being torn down and will be used to build a lean-to on the horse barn to take care of an expected increase in horses.

Mr. S. K. Warrick, of Scottsbluff, was reelected President of the Nebraska Non-Stock Beet Growers' Association at a meeting of directors held this week.

Mr. A. E. Henderson, State and Federal Agricultural Statistician, this week reported that 780,000 sheep and lambs are on feed in Nebraska as compared to 530,000 a year ago and a five-year average of 733,000. A total of 395,000 lambs are being fed in the Scottsbluff area.

Lionel Harris.

Umatilla

Climatic conditions during the two-week period ending January 18:

Week ending	Temperatures			Precipitation, inch	Mean wind velocity, miles per hour
	Maximum	Minimum	Mean		
January 11	55	33	41.9	0.52	5.0
January 18	56	30	43.1	.28	5.8

The weather has continued warm during this period, so that it has been possible to get much spring work done. Considerable progress has already been made in cleaning ditches and in constructing additional cold-frames.

The curbing along the central drive, which was originally started 4 years ago, has been extended up to the station buildings.

Unusually heavy precipitation since the first of the year has greatly improved the outlook for irrigation water next season. While very little snow has fallen in this vicinity, the temperatures in the mountains have favored the rapid accumulation of snow.

H. K. Dean.

Yuma

During the two-week period ending January 18 the maximum temperature was 78, minimum 32, mean maximum 72, and the mean 55°. There was no precipitation. The minimum temperature during the winter season to date is 28°.

Moderate temperatures with no precipitation have facilitated the harvest of fall and winter crops. The curtailment of local public relief projects has also helped to provide adequate farm labor.

The five cotton gins operating on the project report a total of 12,515 bales ginned to date. The ginning season will close about February 15. Cotton yields for 1935 will approximate a bale to the acre.

A late cutting of alfalfa hay has been made, but all of this will be fed locally. Some alfalfa straw and barnyard manure have been shipped to the citrus sections on the coast. Two carloads of alfalfa seed have been sold recently at a price of 11 cents per pound.

Exceptional yields of high quality have been obtained from fall lettuce plantings in the Yuma Valley, but prices declined rapidly after the first few weeks of the shipping season. About 50 carloads have been shipped daily since January 1.

Shipments of grapefruit from the Yuma Mesa district are running from four to six carloads per day. The general trend of prices on grapefruit this season is lower than in 1935. The quality and quantity, however, are much higher.

Pecan production from about 4,000 acres on the project will total approximately 100 tons for this year's crop. A large proportion of this acreage represents young orchards not yet in bearing. Some of the early nut crop was sold at prices ranging from 20 cents to 30 cents per pound.

Station work during this period has included picking and ginning cotton, plowing and leveling cotton land, pruning date palms, trapping gophers, general irrigating and cultivating.

Mr. C. S. Scofield visited the station January 12 to 15.

Yuma (cont'd)

Yields of Seed Cotton from the Irrigated Rotations
Pounds Per Acre

	Maximum	Minimum	Average
Acala yields for 1935 (36 plots)	2,736	672	1,509
12-year(1923-1934) Pima cotton yields ..	1,977	692	1,472

E. G. Noble.

Memorandum for Fieldmen, Western Irrigation Agriculture

Please notify the Washington office promptly upon receipt of all supplies that have been ordered. Payment cannot be certified until that is done. This is particularly important in cases where discount is involved. If the notification is not received in time for payment to be made before the discount period has expired, the fieldman personally will have to assume responsibility for the amount of the discount.

S. H. Hastings.

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Vol. XXXVIII February 1 and 8, 1936 No. 3

Belle Fourche

During the week ending February 8 the maximum temperature was 15 and the minimum -30°. There was 0.49 inch of precipitation.

Zero temperature prevailed during the week, and on Friday one of the worst storms occurred with temperatures ranging from 23 to 30° below zero. All roads were blocked for several days, including the railroads into Rapid City. No serious loss of livestock on the range has been reported.

The feeder lambs were shipped from Newell on January 31 and sold on the Sioux City market February 3.

Beyer Aune.

Summary of Results of Lamb-Feeding Experiments at the Belle Fourche Field Station

These experiments were conducted in cooperation with the South Dakota College of Agriculture, and during the past two years information has been obtained as to the relative value of Sudan grass, Amber cane, and native wheatgrass hay as compared with alfalfa hay in a lamb-fattening ration. Seven lots of 100 lambs each were fed the following rations during the past four months.

Lot 1 - Corn, alfalfa hay.
Lot 2 - Corn, monocalcium phosphate, alfalfa hay.
Lot 3 - Corn, Sudan grass hay.
Lot 4 - Corn, cottonseed cake, Sudan grass hay.
Lot 5 - Corn, Amber cane.
Lot 6 - Corn, native wheatgrass hay.
Lot 7 - Corn, cottonseed cake, native wheatgrass hay.

The cost of the lambs delivered at the feed lot was $7.50 per cwt., and they were sold at Sioux City for $10.60 per cwt. The average profit per lamb above feed cost was as follows: Lot 1, $2.03; lot 2, $2.05; lot 3, $1.14; lot 4, $1.11; lot 5, $1.45; lot 6, $0.69; and lot 7, $0.58.

Amber cane as a substitute for alfalfa hay showed the best results, particularly as to finish, being equal to alfalfa hay. Lots 6 and 7, fed wheatgrass hay, showed the least finish, poorest gain, and the lowest profit per lamb. Adding cottonseed cake to the rations, including Sudan grass and wheatgrass hay, showed no improvement either in gain or in finish and increased the cost of the gains. Adding monocalcium phosphate to the corn and alfalfa showed no improvement over the corn alone.

This completes the ninth year that lamb-feeding experiments have been conducted at this station. The corn and alfalfa ration, which has been used

Belle Fourche (cont'd)

continually during this time, shows a loss two of the nine years and for the other seven years a profit. The average price of the lambs delivered to the feed lot during the 9-year period was $7.53 per cwt.; the average selling price at Sioux City was $9.98 per cwt.; the average price charged for the corn was $1.29 per cwt.; and the average price of alfalfa hay was $8.67 per ton. Using these figures, the average profit above feed cost was 80 cents per lamb for the 9-year period.

Beyer Aune.

Huntley

The maximum temperature during the two-week period ending February 1 was 55 and the minimum -10°. Precipitation in the form of snow amounted to 0.20 inch. Temperatures were above normal during this period as well as during all of January and December. The amount of rainfall has been low, both in the lower valleys and in the higher sections of the Yellowstone watershed. While this condition has been favorable for the wintering of livestock, it appears probable that a shortage of water for irrigation may occur during the coming season.

There has been an active market for finished lambs, with local prices as high as $10 a cwt. A good market for other classes of livestock is being developed in Billings, one firm alone having marketed more than 500 horses and the same number of cattle each week during recent months. Most of the horses sold here are shipped to eastern and southern markets.

Market prices: Beans, $2.50 per cwt.; hay, $8.00 per ton; butterfat, 34 cents per pound; and eggs, 25 cents per dozen.

During the week of January 20 Mr. Hansen and Mr. Seamans attended a conference of Experiment Station people and county agricultural agents at the Montana College of Agriculture in Bozeman.

Dan Hansen.

Newlands

During the two-week period ending February 8 the average maximum temperature was 43.3, with a maximum of 53; the average minimum was 16.1, with a minimum of 6° on January 30. The mean temperature was 29.7°. The wind velocity averaged 1.78 miles an hour. There was 0.85 of an inch of precipitation.

A snowstorm on February 1 and 2 brought 3¼ inches of snow to the Fallon area. An additional 2½ feet fell in the mountains. On the summit of the Sierras at the present time there is about 8½ feet of closely packed wet snow. This amount of snow, together with some 90,000 acre-feet of water in the storage reservoir, should provide an ample supply of irrigation water during the coming growing season.

The station tractor has been operated during this period to disk ground in preparation for seeding and also to level a small area just east of the horse barn and cellar. This is being prepared for a garden site in which to plant small fruits such as berries and grapes. As soon as the frost is out of the ground some 30 acres will be sown to barley and 4 or 5 acres to wheat.

A general cleaning of the dairy corrals has been underway during the past month. About 200 loads of manure will be hauled out and spread in the fields. A light application of manure is being spread on the newly leveled

Newlands (cont'd)

area to help prevent the light sandy soil from blowing this spring.

All observation wells on the station, some 85 in number, have been cleaned and put in condition for the coming irrigation season. Gravel is being hauled to place on the station roads as opportunity offers. Preparation of the detailed report for the year 1935 is now in progress.

E. W. Knight.

Prosser

During the week ending February 1 the maximum temperature was 35, mean maximum 29.1, minimum 8, mean minimum 19.4, and the greatest daily range 17°. The mean hourly wind velocity was 1.27 miles. Precipitation (snow) was 0.1 of an inch. The total precipitation for January was 0.99 inch above normal and the number of cloudy days was 7.3 above normal.

During the week ending February 8 the maximum temperature was 42, mean maximum 26.7, minimum 0, mean minimum 9.3, and the greatest daily range 33°. The mean hourly wind velocity was 4.51 miles. The total precipitation amounted to 0.16 of an inch. The greatest depth of snow on the ground was 2.7 inches.

The Utah-Idaho Sugar Company has not decided on a contract for growers yet but hopes to do so soon. Last year the Sugar Company contracted 3,200 acres, planted 2,800 acres, and harvested 1,950 acres, which produced 20,601 tons of beets. Most of the planted acreage was reduced because of non-execution of contracts. Crop failures were responsible for a minor reduction in the planted acreage.

The price of No. 1 potatoes declined $1.00 a ton during the week and is now $19 to $21 a ton, sacks furnished. No. 2 potatoes are $12 a ton. These prices are f.o.b. car. Up to the week ending February 6 last year 18,527 carloads of produce had been shipped from the Yakima Valley as compared to 13,852 carloads for the corresponding period this year.

Carl A. Larson.

Scotts Bluff

During the week ending February 1 the average maximum temperature was 20, with a maximum of 31; the average minimum was -2, with a minimum of -14°. The daily wind movement averaged 7.1 miles an hour. There was 0.04 inch of precipitation.

The continuous cold weather has prevented a great amount of outside work except chopping wood and the usual routine.

During the week the station began cooking cull potatoes for feeding pigs. The price of potatoes remains so low that this seems to be the only possible way to utilize a large portion of the crop. In order to get 60 to 65 cents a cwt. the potatoes are strictly graded; consequently, the percentage of culls is high.

Final settlement checks for the 1935 wool clip were distributed this week by the Midwest Wool Marketing Association.

At the annual meeting a few days ago in Torrington, Wyoming, optimism over prospects for a profitable turkey raising season this year was expressed by members of the North Platte Valley Cooperative Poultry Marketing Association of western Nebraska and eastern Wyoming.

Scotts Bluff (cont'd)

Mr. A. E. Anderson, State and Federal Agricultural Statistician, stated that proceeds from potatoes were adding considerably to farm incomes in western Nebraska this year because of largely increased shipments. Up to January 25 a total of 5,446 carloads were shipped as compared with 2,238 carloads during the corresponding period last year. A total of 3,268,000 bushels have already been moved by rail and a considerable quantity also by truck.

During the week ending February 8 the average maximum temperature was 12, with a maximum of 28; the average minimum was -14, with a minimum of -35°. The daily wind movement averaged 9.6 miles an hour. There was 0.12 inch of precipitation in the form of snow.

It has been so cold during the week that little outside work has been possible except caring for the livestock. The minimum temperature of -35° is the lowest ever recorded during February at this station. The cold weather began February 3 and has not yet abated. Last night the minimum temperature was -15°. This is the longest and severest period of cold weather ever experienced in February at this station. The snowfall has been light and wind movement moderate; consequently, roads throughout the valley are all open for travel.

Seed corn sent by farmers of Scotts Bluff County to the State Seed Laboratory at Lincoln has shown a very high germinating percentage, J. P. Ross, County Agent, reported. Most of the Scotts Bluff County corn tested at Lincoln showed a germination of from 90 to 95 percent.

On February 5 the Pathfinder Dam on the North Platte River southwest of Casper, Wyoming, held 68,350 acre-feet of water as compared with a maximum of 44,530 acre-feet a year ago and 188,270 acre-feet two years ago.

The Great Western Sugar Company announced a cut of 20 cents a hundred pounds in the price of beet sugar, retroactive to February 3.

Lionel Harris.

Yuma

During the two-week period ending February 1 the maximum temperature was 77, mean maximum 70, minimum 33, and mean minimum 40°. There was 0.40 inch of precipitation.

The mean temperature for the month of January was about normal, although cooler than January 1935. Rainfall during the month was below normal. The general storm throughout the southwest on January 28 and 29 was the rainfall of the month. Coastal sections of southern California are reporting that only half of the usual winter precipitation has fallen.

Data of the U. S. Bureau of Reclamation on the Colorado River show that the discharge at Grand Canyon for January was 278,000 acre-feet as compared with 289,000 acre-feet for January 1935. The discharge at Topoc, below Boulder Dam, during January 1936 was 290,000 acre-feet. The estimated storage on February 1 was 3,792,000 acre-feet. The snow cover on the watershed of the river has not been reported to date.

Shipments of vegetables and fruit from the project during January included 634 carloads of lettuce, 35 carloads of carrots, 1 carload of cabbage, 19 carloads of mixed vegetables, and 92 carloads of grapefruit.

The reports from the project gins show that 14,101 bales of cotton were ginned during the season. Two gins have closed for the season.

Yuma (cont'd)

Station work during the past two weeks has included ginning cotton; plowing, disking, and leveling cotton plots; pruning date palms; hoeing alfalfa nursery plots; general cultivating and irrigating.

E. G. Noble.

M I S C E L L A N E O U S

A paper entitled "Automatically-Operated Sand Culture Equipment," by Dr. Frank M. Eaton, has been submitted for publication in the Journal of Agricultural Research.

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Newlands

During the two-week period ending February 22 the average maximum temperature was 52.9, with a maximum of 68; the average minimum was 29.2, with a minimum of 17°. The mean temperature was 41.1°. The wind velocity averaged 3.41 miles an hour. The precipitation amounted to 1.30 inches.

The rainfall during this period has brought the total for the month to 2.02 inches. This is the heaviest precipitation ever recorded at this station during the month of February, which has a normal rainfall of 0.54 inch. The record February precipitation prior to this year was 1.45 inches. The present expectations are that the Lahontan storage reservoir will overflow this spring.

The new series on field A has been seeded and the manuring finished. It is hoped that the manure, moisture, and early seeding will furnish early growth and prevent soil blowing during the spring months. When such a large area of sandy soil is prepared for cultivation it is a problem to prevent the high winds of April from blowing it away. After a few years of cultivation sufficient organic matter becomes incorporated with the soil to prevent much damage from the wind.

Two men have been hauling gravel. All the roads of the station area are being graveled.

E. W. Knight.

Prosser

During the week ending February 15 the maximum temperature was 25, mean maximum 19.1, minimum 3, mean minimum 7.8, and the greatest daily range 21°. The mean hourly wind velocity was 2.55 miles. Precipitation, in the form of snow, amounted to 0.05 inch. The weather continued cold with temperatures below normal throughout the week. There is a scattered covering of snow on the ground in the Prosser district.

W.P.A. laborers have been cutting wood, repairing fences and farm machinery.

Per-acre value of crops grown in the following districts of the Yakima Valley in 1935:
(Compiled by the Bureau of Reclamation)

Sunnyside	$39.51
Tieton	105.49
Kittitas	24.27
Kennewick Highlands	54.99
Franklin Co. Irrigation District	36.56

Prosser (cont'd)

Hops, the most valuable crop in the valley, had a value of $209 per acre in the Sunnyside District.

During the week ending February 22 the maximum temperature was 47, mean maximum 25.4, minimum -4, mean minimum 11.3, and the greatest daily range 26°. The mean hourly wind velocity was 2.32 miles. Precipitation amounted to 0.44 inch in the form of snow.

The long period of freezing weather, approximately 25 days, was broken on February 22 when the temperature rose to 47°. The warm weather was accompanied by a chinook wind, which reduced the snow very rapidly.

W.P.A. laborers were repairing farm machinery most of the week.

Hay and potatoes increased in price because of the continued cold weather.

Butterfat is now 39 cents a pound.

Carl A. Larson.

Scotts Bluff

During the week ending February 15 the average maximum temperature was 16, with a maximum of 28; the average minimum was -10, with a minimum of -23°. The daily average wind movement was 9.6 miles an hour. There was 0.04 inch of precipitation in the form of snow.

Grading potatoes for the market has been the chief activity at the station.

Despite extremely severe and prolonged cold weather the proper temperature for keeping potatoes has been maintained in the station cellar. Many farmers throughout the valley have been using stoves in their cellars for almost three weeks.

This week the average minimum temperature was -10°, last week it was -14°, three weeks ago it was -2°, and on February 15 the maximum was -4°. These low temperatures, accompanied by high winds, are very hard on livestock. Livestock interests, however, have been adequately informed as to weather conditions, and the loss of stock in the valley to date has not been large.

On February 8 there were 330,000 lambs in feed lots of the North Platte Valley Lamb Feeders' Association as compared with 315,000 on feed the same date in 1935.

The annual meeting of the Scottsbluff Cooperative Potato Association was held this week in Scottsbluff.

Butterfat is selling for 37 cents a pound.

During the week ending February 22 the average maximum temperature was 13, with a maximum of 41; the average minimum was -5, with a minimum of -28°. The daily wind movement averaged 7.6 miles an hour. There was 0.13 inch of precipitation in the form of snow.

Station activities consisted of grading and loading potatoes. Approximately 500 sacks have been loaded and shipped and over a thousand sacks have been graded. Commercial seed sold for 75 cents a cwt., certified seed for 90 cents a cwt., and U. S. No. 1 table for 85 cents a cwt.

The severe cold wave which has prevailed in this region since February 3 ended February 19. A summary of the weather conditions during that time follows: On 15 of the days from February 3 to 19, inclusive, minimum temperatures were below zero, ranging from -2 to -35°. The average minimum

Scotts Bluff (cont'd)

for the 17 days was -14°. Six times the minimum temperature was -20° or lower: -20 twice, -21, -23, -28, and -35. The minimum of -35 is within 2° of the lowest temperature ever recorded at this station. Six of the maximum temperatures were below zero: -1 twice, -4, -5, -7, and -9°. On February 16, 17, and 18 the maximum temperatures were -4, -1, and -7°, respectively; on February 8 and 9 they were -9 and -5°, respectively. Previous to this, maximum temperatures have never been recorded for a consecutive period of more than 48 hours. Only one other cold wave in the history of this station compares in severity with the recent one. During January 1930 the average minimum temperature for 24 consecutive days was approximately -12°. The maximum temperature during this period, however, was below zero only three times.

According to a statement by Mr. C. W. Watkins, Nebraska Director of the Federal shelterbelt project, the planting of some 200 miles of strip shelterbelt on farms in Nebraska, which will require approximately 4,000,000 seedlings, will be started late in March or early in April.

Lionel Harris.

Umatilla

Climatic conditions during the four-week period ending February 15:

Week ending	Temperatures			Precipitation, inch	Mean wind velocity, miles per hour
	Maximum	Minimum	Mean		
January 25	52	26	35.1	0.04	2.2
February 1	39	7	24.9	.23	2.2
February 8	41	-3	19.6	.19	5.5
February 15	23	-6	12.1	.53	2.4

During the week ending January 25 labor was employed cleaning ditches, repairing irrigation structures, and general cleaning up around the buildings. No field work was possible after January 26 with 2 to 6 inches of snow and the ground frozen.

All of the precipitation during this period fell as snow, which continues to accumulate in the mountains; so that conditions for the water supply next season are much better than the early moisture would indicate.

The water was cut off from the feed canal on January 19 on account of ice conditions and has not yet been started again.

H. K. Dean.

Yuma

During the two-week period ending February 22 the maximum temperature was 81, mean maximum 73.4, minimum 33, and the mean minimum 43.6.° There was 0.32 inch of precipitation.

Temperatures higher than normal with rather frequent light rains have been favorable to the winter grain and new alfalfa plantings.

Carload shipments of project produce have been moving to market at the following daily rate: Lettuce, 28 carloads; grapefruit, 5 carloads; carrots, 1 carload.

Yuma (cont'd)

The 1935 cotton season has closed and all gins have shut down. The final yields on all project land will average approximately a bale to the acre.

As to cotton variety plantings in 1936 the present indications are as follows: the Stoneville variety on nearly all cotton land in the Yuma Valley, mostly Acala in the Bard section, and approximately 200 acres of long staple Pima in the Bard and North Gila Valleys.

Station work performed during this period has included leveling cotton lands, ginning cotton, roguing alfalfa nursery plots, repairing ditches, general cultivating and irrigating.

E. G. Noble.

Memorandum for Fieldmen, Western Irrigation Agriculture

The Division of Accounts of the Bureau of Plant Industry reports that our fieldmen fail from time to time to fill in and sign "Certificate of Issuing Officer" on Government bills of lading. This certificate must be properly filled out before payment can be made. Therefore, more careful attention to this matter will be appreciated.

C. B. Aylor.

WEEKLY REPORTS

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
Bureau of Plant Industry
United States Department of Agriculture

Vol. XXXVIII February 29 and March 7, 1936 No. 5

Huntley

During the week ending March 7 the maximum temperature was 63 and the minimum 25°. No precipitation was recorded.

The continuous thaw during this period has taken off all of the snow that remained after the severe storms of February. Except on plowed fields there was a heavy run-off of water, and in some sections of the lower lands there was considerable damage to property. Ice jams in the lower part of the Yellowstone River have pushed out some bridges and blocked highways.

As the snowfall was heavy in the mountains and the amount of snow in the upper sections of the Yellowstone watershed is much greater than at any time in recent years, an ample supply of irrigation water is assured.

Station work during this time included only the routine of caring for the livestock.

Dan Hansen.

Newlands

During the two-week period ending March 7 the average maximum temperature was 57.8, with a maximum of 67; the average minimum was 24.8, with a minimum of 21, and the mean was 41.3°. The wind velocity averaged 2.66 miles an hour. There was 0.07 inch of precipitation during this period.

Lahontan Reservoir holds at the present time 140,556 acre-feet of water, which, with the amount of snow in the mountains, assures an ample supply of water for irrigation this season.

At the station plots F-6, J-8, J-9, J-10, and the K series have been seeded to wheat; plots D-1, D-4, E-5, E-10, and F-5 were seeded to barley; and plots Y-11 to Y-23, inclusive, are being prepared for sowing to barley. About 40 of the trees that were planted last spring did not survive the winter, and these vacancies are being filled.

Orders have been placed for several varieties of small fruits. These will be planted east of the farm buildings on land that has been recently leveled.

The Nevada Agricultural Experiment Station is having a new pump installed on a recently completed well to furnish water for the livestock. The existing well and pumping system has proved to be inadequate to supply water for both the livestock and the domestic needs. It is hoped that the new well will furnish enough water for some protection in case of fire.

E. W. Knight.

Prosser

During the week ending February 29 the maximum temperature was 62, mean maximum 49, minimum 20, mean minimum 28.3, and the greatest daily range 26°. The mean hourly wind velocity was 5.04 miles. Precipitation, in the form of snow, amounted to 0.01 inch. The mean minimum temperature for the month of February was 13.3° below normal.

A chinook wind melted the snow very rapidly in the Prosser district. The run-off water did considerable damage to parts of the new drainage ditch and the partially constructed culverts along the roadways at the station.

At the end of the week approximately 1400 ewes with lambs were being fed at the station. The station hay is sold to the sheepmen, who feed it with their own labor at the station feed yards.

During the week ending March 7 the maximum temperature was 70, mean maximum 61, minimum 30, mean minimum 32.1, and the greatest daily range 37°. The mean hourly wind velocity was 1.67 miles.

Sugar beet plots in the rotation series were plowed, rolled, and seeded during the week. U. S. No. 34 beet seed was used on the rotation plots. Six varieties of sugar beets have been obtained from the Utah-Idaho Sugar Company for trial at the station. Most of the wheat plots were plowed in preparation for seeding at the end of the week.

The Utah-Idaho Sugar Company has offered valley farmers a contract this year in which the freight charges from the valley to the factory at Bellingham, Washington, will be absorbed by the company. The initial payment will be $4.45 per ton, with a possibility of the total payments amounting to $6.50 to $7.00 a ton. The committee of farmers who consulted with officials of the Sugar Company have urged farmers to sign contracts.

During the week 600 ewes with lambs were brought to the station for feeding, making a total of 2,000 ewes with lambs on feed at the station.

The price of alfalfa hay advanced $1.50 a ton and is now $10 a ton in the stack.

Carl A. Larson.

Scotts Bluff

During the week ending February 29 the average maximum temperature was 49, with a maximum of 60; the average minimum was 23, with a minimum of 10°. The wind movement averaged 10.8 miles an hour. There was no precipitation. Severe dust-storms occurred on February 24 and 25.

Station activities included loading potatoes and storing ice in the station cellar. Approximately 12 tons of excellent ice has been hauled from University Lake and stored in the cellar for the purpose of keeping seed potatoes in a better condition when the weather gets warm in the spring. Frequently during April and May difficulty has been experienced in keeping cellars cool enough to prevent considerable sprouting of potatoes.

At a meeting of the North Platte Valley Lamb Feeders' Association, held in Scottsbluff on February 27, John Jirdon, of Morrill, was elected President of the association.

During the week ending March 7 the average maximum temperature was 59, with a maximum of 67; the average minimum was 26, with a minimum of 19°. The daily wind movement averaged 8.3 miles an hour. There was no precipitation.

Scotts Bluff (cont'd)

During the week plowing was begun in field K in preparation for the spring planting. Most of the plots which are to be planted to grain or beets have been plowed. The soil is quite dry.

A car of No. 1 table potatoes has been loaded. Approximately 5 more tons of ice has been stored in the station cellar.

The Great Western Sugar Company and the Nebraska Non-Stock Cooperative Beet Growers' Association have reached an agreement on the 1936 sugar beet contract. The basic price for crops is the same as last year, but a change has been made in the tare section of the contract. In this year's contract several important changes were made involving issues which in past years have caused strife between processors and growers.

Storage in the Pathfinder Reservoir on February 29 totaled 82,319 acre-feet as compared with 62,910 acre-feet of water at the corresponding time last year. The Guernsey Reservoir held 27,910 acre-feet on the 29th of February, the same amount that was reported last year for that date. Under normal conditions water is not released to irrigation ditches before May 1, and it is believed that the Pathfinder Reservoir will be filled to capacity (1,045,000 acre-feet) before the irrigation season begins.

Lionel Harris.

Umatilla

Climatic conditions during the three-week period ending March 7:

Week ending	Temperatures			Precipitation, inch	Mean wind velocity, miles per hour
	Maximum	Minimum	Mean		
February 22	49	-12	17.6	0.46	2.1
February 29	58	22	39.5	.04	3.8
March 7	70	25	48.5	.00	5.9

The month of February was characterized by unusual weather conditions. The ground was frozen during the entire month, so that no field work was possible. The mean temperature was 22° as compared with a normal of 37°. The mean maximum was 30°, which was the lowest on record. Precipitation amounted to 1.22 inches as compared with a normal of 0.88 inch. Snow continued to accumulate in the mountains during the month, so that the most favorable water supply conditions in many years exist in eastern Oregon. The McKay Dam, which supplies the Westland and Stanfield projects, will be filled for the first time since its construction some ten years ago. The average wind velocity of 18.2 miles an hour on February 6 exceeds the previous high record for February by 4 miles.

At the request of the Oregon Extension Service the Superintendent attended the economic conferences for Deschutes and Crook counties from February 26 to March 3 to act as secretary for the local turkey committees and in an advisory capacity to the dairy committees.

Snow went off rapidly with a chinook wind, and field work was resumed on March 5.

H. K. Dean.

Mr. C. S. Scofield is expected to return to Washington on March 30.

WEEKLY REPORTS

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
Bureau of Plant Industry
United States Department of Agriculture

Vol. XXXVIII March 14 and 21, 1936 No. 6

Belle Fourche

Report for January

The weather was cloudy and unsettled throughout most of January, and the last half of the month was abnormally cold and stormy. There was a total of 20 inches of snow, yielding 1.12 inches of precipitation. Most of the 18 inches of snow fell during the heavy storms on January 16, 21, and 23. A warm wind on January 21 and 22 caused some drifting and packing of snow, and high winds on January 25, 28, 29, and 30 drifted the snow badly, blocking all highways and leaving cultivated fields nearly bare.

During January the maximum temperature was 41, minimum -25, and the mean 10°, which is 7° below normal. During the last half of the month maximum temperatures ranged from 1° to 33° and minimum temperatures from -25° to 4°. Zero or subzero temperatures occurred on 13 days.

The weather was too cold throughout the month to permit further germination or growth of fall grains, but all crops were well protected by snow during the periods of abnormally cold weather. Very little wind accompanied the snowstorms. Losses of livestock on the range were no heavier than normal, but considerable feeding will probably be necessary during the remainder of the winter.

Report for February

February was much colder than any other month in the 28 years of record, the maximum temperature being 47, the minimum -36, and the mean -2°, which was 6° colder than the previous lowest mean, which was recorded in December 1927. Other record-breaking cold weather features of the month included 24 days of subzero minimum temperatures, 21 consecutive days of subzero temperatures, and 12 days when the maximum temperature was below zero. The severe cold wave terminated February 23. The precipitation amounted to 0.94 inch.

Numerous snowstorms, including two severe blizzards, occurred during the first half of the month, bringing approximately 11 inches of snow. About 20 inches of snow, measuring 1.92 inches of precipitation, fell between January 16 and February 19, and a total of 2.06 inches of precipitation was recorded from January 1 to February 29. This is the largest amount ever received in the two months of January and February during the 28 years of record. The snow disappeared rapidly during the warm weather the latter part of the month, and by February 29 the ground was nearly bare except where the snow had collected in drifts. Water from snow retained on the fields was readily absorbed by the dry soil, and there was very little run-off. Moisture penetrated deep enough on most all plots to permit germination of fall grain.

Beyer Aune.

Huntley

During the week ending March 21 the maximum temperature at this station was 63 and the minimum 21°. No precipitation was recorded.

General field work was started in this section during the week. Following the heavy precipitation in February the soil is in excellent condition and the moisture supply is good. An ample supply of water for irrigation is assured since the snowfall in the mountains is heavier than for several years past. While the reserve supply of subsoil moisture in dry lands is low, the top soil is well supplied and it is probable that a large acreage will be seeded to spring crops.

Some time ago growers and the Sugar Company agreed on a contract for sugar beets. It appears probable now that a much larger acreage of beets will be contracted for than was grown in 1935.

The price of Great Northern beans has advanced to $2.90 per cwt., and there is a heavy movement of the 1935 crop to market.

Station work during the week included preparing the dry land plots for seeding and sorting potatoes for marketing.

Dan Hansen.

Newlands

During the two-week period ending March 21 the average maximum temperature was 66, with a maximum of 71; the average minimum was 28.4, with a minimum of 20°, and the mean was 47.2°. The average wind velocity was 3.13 miles an hour. There was no precipitation.

Work at the station has consisted of seeding a small area in the Y series to Jerusalem artichokes and planting several varieties of fruit trees in the orchard in series B. Many of these plantings are replacements of trees that did not survive the 1935 season. Additional F. P. I. budded stock, obtained from Chico Plant Introduction Gardens, has also been set out. These trees, as a whole, are budded to root stock that is known to be hardy and resistant to a high water table.

Work has been in progress on the new State well. An adequate supply of water could not be obtained from a well 24 feet deep, using an 8-inch casing. Consequently, a sump 7 x 10 feet is being dug to a depth of approximately 18 feet, to insure an adequate supply of water for livestock and emergency fire protection. A partial analysis of the water shows a specific conductance of 100, indicating a quality satisfactory for all purposes.

Water storage in Lahontan Reservoir is steadily increasing, the total to date being 165,550 acre-feet. Recent observations indicate the water may reach the spillways of the dam. On Donner Summit snow is packed to a depth of 90 inches. Conditions are equally as good at the headwaters of the Carson River. Thus a supply of water ample for irrigation this season is assured.

Mr. C. S. Scofield visited this station on March 22 while en route to Washington.

C. L. Moon.

Prosser

The maximum temperature during the week ending March 14 was 62, mean maximum 56.4, minimum 26, mean minimum 34.4, and the greatest daily range 28°. The mean hourly wind velocity was 4.85 miles.

Prosser (cont'd)

Wheat was seeded on all wheat plots in the rotations at the end of the week. Six sugar beet varieties were seeded for trial tests. Soil sifting for wireworm counts was started the first of the week by the Bureau of Entomology. Approximately three or four wireworms to the cubic foot were found in some of the plots of the first series. This number is enough to damage potatoes for commercial use.

More than 1200 ewes with lambs were taken from the station to sagebrush pasture the latter part of the week. All of the calves on feed at the station were also taken to pasture the latter part of the week.

The following men visited the station during the week: Dean E. C. Johnson and Dr. L. C. Wheeting, of the State College, Pullman, Washington; Mr. M. C. Lane and Mr. E. W. Jones, of the Wireworm Laboratory, Walla Walla, Washington.

The maximum temperature during the week ending March 21 was 71, mean maximum 61.7, minimum 26, mean minimum 30.6, and the greatest daily range 41°. The mean hourly wind velocity was 2.48 miles.

Irrigation water was diverted to the Sunnyside Canal on March 16. The process of priming the canal is being carried on slowly this year because there is no great demand for water due to the late spring.

The farm irrigation system is being repaired. The W. P. A. laborers have been excavating for new pipe lines and removing old pipe. The work on farm fields has been progressing rapidly as the weather has been favorable.

The price of alfalfa hay declined $2 per ton during the week and is now $8.50 per ton in the stack. Potato prices increased $2 per ton and are now $24 per ton for U. S. No. 1, sacks furnished, f.o.b. car.

Carl A. Larson.

Scotts Bluff

During the week ending March 14 the average maximum temperature was 57, with a maximum of 74; the average minimum was 22, with a minimum of 9°. The daily wind movement averaged 12.1 miles an hour. There was no precipitation.

A group of men are stimulating interest in the production of artichokes in the North Platte Valley. Meetings have been held during the week at various places to encourage farmers to buy seed, which is selling at a high figure, and plant the crop. Problems of production were also discussed.

Station activities during the week included plowing and spreading manure. All the plots in fields K and E, except the green manure plots which are to be planted to potatoes, have been plowed.

Mr. J. P. Ross, County Agent of Scotts Bluff County, resigned last week to accept appointment as district extension leader of the Nebraska Agricultural College Extension Service. Mr. C. W. Nibler was appointed as the new County Agent.

The annual Lamb Feeders' Day, held at Torrington, Wyoming, on March 11, was attended by the Acting Superintendent.

During the week ending March 21 the average maximum temperature was 54, with a maximum of 66; the average minimum was 24, with a minimum of 15°.

Scotts Bluff (cont'd)

The daily wind movement averaged 10.4 miles an hour. There was no precipitation.

During the week manure was spread and the ground plowed for the experiment which Mr. S. B. Nuckols is conducting at the station. The corn stubble land on the Walker place has been manured and disked.

The annual potato day was held at Scottsbluff on March 20. There was a discussion of current marketing and production problems. Potatoes from several rotations on the Scotts Bluff Station were placed on exhibition to represent yield and scab conditions. The writer gave a talk on crop rotation as it influences yield. Dr. Goss, of the University, discussed the effect of crop rotation on disease. An interesting collection of new potato machinery was displayed.

Dr. H. O. Werner visited the station on Tuesday.

Lionel Harris.

Yuma

During the two-week period ending March 14 the maximum temperature was 91, mean maximum 87, minimum 43, and the mean minimum 48°. There was no precipitation.

The month of February was 0.9° above normal temperature and 1.5° cooler than February a year ago. During the first two weeks of March the temperatures were higher than normal. This warm weather with an absence of high winds is favorable for early planted cotton. A large acreage of the 1936 cotton crop has already been planted, and satisfactory stands were obtained in most cases.

The first crop of alfalfa on the project was harvested early this month. The price of hay is $10 a ton in the field.

The following carloads of produce were shipped from Yuma last week: Lettuce 900, carrots 22, hay 24, livestock 18, grapefruit 28, and mixed vegetables 10..

The U. S. Geological Survey reports that the discharge of the Colorado River at Grand Canyon for February was 357,000 acre-feet as compared with 306,000 acre-feet for February 1935. The discharge at Topoc, below Boulder Dam, was 336,000 acre-feet. The estimated storage behind the dam as of March 1 was 3,796,000 acre-feet.

Station work during this period has included harvesting the first cutting of alfalfa; planting Pima and SxP-30 in a variety test; leveling cotton plots on the rotation block; planting ornamental trees and shrubs; pruning ornamentals; general hoeing, cultivating, and irrigating.

Ten pigs were placed on the livestock rotations on March 5.

E. G. Noble.

M I S C E L L A N E O U S

Mr. C. S. Scofield arrived in Washington on March 28, and he expects to be located here for the next several months.

A WELL SOUNDER FOR DETERMINING WATER ELEVATIONS IN OBSERVATION WELLS

Description of the Apparatus

For some time the limitations of the devices for the determination of water elevations on the field stations maintained by this Division have been recognized. In view of the fact that extensive observations of this nature are being made on three of these field stations, consideration has been given to the possibility of developing a more satisfactory method. As a result a new, and what is believed to be an improved, apparatus has been devised which has materially expedited the work of taking these readings, and it is possible to make more precise determinations. The details of this new type of well sounder, drawn to a scale one half natural size, are shown on the opposite page.

The apparatus consists of (1) a steel tape and (2) a sounder. The sounder consists of a seamless brass tube about 12 inches long, with a wall 1/32 inch thick and an inside diameter of $1\frac{1}{2}$ inches. This tube contains two ordinary flashlight batteries (B) properly wired to a small commercial office buzzer (C). A cork float (G) is inserted at the lower end of the brass cylinder, with attachments provided for making the electrical contact between the wires leading from the batteries (B) to the buzzer (C). The material providing the contact points (D) and (E) is made from extremely flexible steel, so that the electrical circuit may be completed and the buzzer started when the cork float (G) is only slightly submerged. In the top of the brass cylinder is inserted a machined brass plug (O)to which is attached a stainless steel tape (A) calibrated to 0.01 foot. A sufficient length of the end of the tape is removed to bring the zero to the point where the buzzer sounds as the lower end of the apparatus is submerged. Hence the depth to the ground water may be read directly from the tape at the reference mark at the top of the well. Repeated tests have demonstrated that water elevations accurate to within 0.01 foot are practicable. All of the interior mechanism may be taken out for the purpose of renewing the batteries or making adjustments by removing the screws designated (M).

For several months a well sounder of this type has been in use at the Newlands Field Station, Fallon, Nevada, where some 80 readings are taken weekly, and it has proved highly satisfactory. Not only has it materially lessened the time required to take the readings, but also it has been found that greater accuracy is possible.

S. H. Hastings.

WEEKLY REPORTS

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(Not for publication without the prior consent of this Division.)

Vol. XXXVIII March 28 and April 4, 1936 No. 7

Huntley

During the week ending April 4 the maximum temperature was 44 and the minimum -7°. There was 0.38 inch of precipitation.

The minimum of -7° on April 2 was the lowest temperature for this month in the history of the station. The storm was general over the State, with a heavy fall of snow in the mountain sections.

The condition of winter wheat in this area is poor due to unfavorable winter conditions, and a large amount of the acreage will be abandoned or reseeded to spring grains.

Local prices of farm products: Great Northern beans $3 a cwt., alfalfa hay $11 a ton, eggs 18 cents a dozen, and butterfat 31 cents a pound.

Billings is becoming an important market for farm horses, for which there is a rather brisk local demand. One firm sells from 300 to 500 horses each week. Teams of heavy draft horses are bringing from $450 to $475. Much of this stock is being shipped to points in the Middle West and the South.

No field work was possible at the station during the week.

Dan Hansen.

Newlands

During the two-week period ending April 4 the average maximum temperature was 50.7, with a maximum of 63; the average minimum was 27, with a minimum of 15°. The mean temperature was 38.9°. The wind velocity averaged 6.06 miles an hour. There was 0.25 inch of precipitation.

Lahontan Reservoir contains about 190,000 acre-feet of water, far exceeding the amount stored last year at this time. Some 2 feet of additional snow fell in the Sierras recently. The last measurements on the summit showed 134 inches of packed snow.

Some water has been turned in the distribution system for irrigation purposes. However, little irrigating is necessary as the ground has sufficient moisture for most crops. High winds during recent storms have dried out some of the surface soil and caused some of the lighter soils to move. It has been necessary to rebuild about one mile of farm ditches on the recently leveled area, for the high winds of January and March filled them with sand. With water available for irrigation it is hoped that the greater part of this light soil can be kept in place during future spring winds.

The well for the State dairy unit has been completed. A fair quantity of satisfactory water has been obtained. A stream of about 100 gal-

Newlands (cont'd)

lons a minute for about an hour is possible from the present stored supply. The amount will be materially increased as soon as the irrigation season opens. The pump and motor have not yet been installed as an automatic functioning unit.

Some plantings are being made of rhubarb, berries, asparagus, and grapes. A small area will be seeded to crested wheatgrass. Some additions have been made to the shrubbery plantings.

Other station activities have included hauling manure, repairing irrigation structures, cultivating the orchard, destroying weeds, and repairing dairy barns and corrals.

E. W. Knight.

Prosser

During the week ending March 28 the maximum temperature was 59, mean maximum 52, minimum 20, mean minimum 28.1, and the greatest daily range 31°. The mean hourly wind velocity was 5.31 miles. Precipitation, in the form of snow, amounted to 0.07 of an inch. High wind movement the latter part of the week did considerable damage to sugar beet and wheat plots in the rotations.

Water entered the Sunnyside Canal by Prosser on March 27.

Work during the week included laboratory routine and repairing the irrigation system. Concrete workers from the Union Concrete Pipe Company laid 1400 feet of concrete pipe. A concrete box has been constructed at the No. 1 delivery. An 8-inch pipe was used to replace the 6-inch pipe at No. 2 delivery.

U. S. No. 1 potatoes have advanced in price and are now $27 per ton.

Dr. Roy E. Marshall and Mr. Walter J. Clore, of the State College of Washington, Pullman, Washington, visited the station March 26 and 27.

During the week ending April 4 the maximum temperature was 57, mean maximum 43.9, minimum 19, mean minimum 25.1, and the greatest daily range 35°. The mean hourly wind velocity was 5.36 miles. Precipitation (snow) amounted to 0.01 inch.

The weather was cold and windy. Soft fruits such as cherries and apricots may have been damaged by the cold weather, but that has not yet been determined. Attempts at orchard heating met with failure due to wind movement.

At the end of the week 546,000 acre-feet of irrigation water was impounded in the reservoirs. There are 150 inches of snow on Snoqualmie Pass of the Cascade Mountains; so the supply of water should be ample this season.

Work during the week was principally laboratory routine and repairing the irrigation system. Some of the flume lines on the rotation plots were covered with soil during the duststorm and had to be uncovered. Metal gates were installed on two concrete water boxes in the fifth and sixth series.

Wheat seeded in the rotation plots was not damaged by the windstorm, but the corrugations were filled in on some of the plots to such an extent that reditching will be necessary. Sugar beets suffered from frost damage after wind erosion had uncovered some of the plants.

Prosser (cont'd)

At the end of the week the Prosser district pump was started, but due to a leaky pipe line the pump was closed down in order to repair the pipe. There has been no demand for irrigation water on account of the cold weather.

Potatoes have advanced $3 per ton and are now $30 per ton.

Carl A. Larson.

Scotts Bluff

During the week ending March 28 the average maximum temperature was 46, with a maximum of 61; the average minimum was 22, with a minimum of 4°. The daily wind movement averaged 13.3 miles an hour. There was 0.08 inch of precipitation in the form of snow.

Station activities included plowing and spreading manure on the Walker place, and disking, rolling, and floating plots in field K. The soil is very dry and cloddy and rather difficult to work into a good seed bed.

C. W. Nibler, County Agent, has announced that the new soil conservation program in Scotts Bluff County will be discussed this week and next in a series of meetings, so that farmers of the county may be informed on this subject.

A Mitchell lamb shipper was the only one to top the market this week at Chicago, receiving $10.50 per cwt. for a carload of choice 90-pound lambs.

The Scotts Bluff district had 165,000 lambs on feed March 21 as compared with 195,000 on the same date last year.

During the week ending April 4 the average maximum temperature was 31, with a maximum of 60; the average minimum was 5, with a minimum of -10°. The daily wind movement averaged 11.8 miles an hour. There was 0.38 inch of precipitation (snow).

No field work has been possible during the week because of snow and cold weather. The -10° minimum temperature during the night of April 1 was the lowest ever recorded in April at this station. Station activities consisted of treating seed grain and preparing manure for the hotbed. A milking machine has been installed in the dairy barn.

According to a statement of Mr. S. K. Warrick, President of the Nebraska Beet Growers' Association, Nebraska growers may receive $6 to $6.25 a ton from the Great Western Sugar Company for their 1936 sugar beet crop if present upward trends in the price of sugar continue.

The first additional 1935 beet crop payment, totaling $211,321, will be made by the Great Western Sugar Company to farmers in the Nebraska district on April 6 or 7. The Sugar Company also announced its price for refined sugar will be increased 15 cents a cwt.

Lionel Harris.

Yuma

During the two-week period ending April 4 the maximum temperature was 83, mean maximum 74, minimum 32, and mean 42°. There was 0.05 inch of precipitation. For the month of March the maximum temperature was 94°, the minimum 32°, and the precipitation 0.05 inch.

Yuma (cont'd)

— High winds and cooler weather have prevailed since March 22. This adverse weather has interfered with planting cotton. Most of the early plantings made in the first part of March are up to a good stand. Replanting of those fields planted during the last two weeks will undoubtedly be necessary. The frost on March 23 caused some damage to young cotton in the lower lands of the project.

The lettuce season is about over. To date 2,904 carloads have been shipped as compared with 3,245 for the same period last year. While some carrots have already been shipped, the bulk of the crop is now being marketed. Approximately 200 carloads will be shipped from Yuma.

Cantaloups will be shipped about May 15. It is estimated that 3,660 acres were planted to this crop in 1936, as compared with 4,200 acres harvested in 1935.

Grapefruit shipments for the season have totaled 175 carloads. This is about 60 percent of the 1935-36 crop.

Station work during this period has included preparing land for planting cotton. repairing ditches and borders, painting farm buildings, pruning and pollinating date palms, harvesting vetch plantings, general irrigating and hoeing.

E. G. Noble.

WEEKLY REPORTS

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
Bureau of Plant Industry
United States Department of Agriculture

(Not for publication without the prior consent of this Division.)

Vol. XXXVIII April 11 and 18, 1936 No. 8

Belle Fourche

During the week ending April 4* the maximum temperature was 47 and the minimum -11°. There was 0.42 inch of precipitation.

On account of the snow and extremely cold weather no field work could be done during the week. The -11° recorded on April 2 is the lowest temperature ever experienced during April at this station.

On the headwaters of Spearfish Creek over 2 feet of snow fell. There was also a good snowfall on the headwaters of the Belle Fourche River. On April 1 the Orman Reservoir contained about 63,000 acre-feet of water. With an average rainfall during the remainder of the irrigation season there will be an ample supply of water this year for irrigation.

To date over 8,000 acres of sugar beets have been contracted for, and it is expected that about 4,000 acres more will be signed up.

During the week ending April 11 the maximum temperature was 61 and the minimum 0°. There was 0.32 inch of precipitation.

Field work was again resumed on April 10. Station activities included general cleaning up, hauling manure from the lamb feeding lots, and pruning orchards and shrubs.

Lambing of the farm flock is practically completed. From 109 ewes turned in with the bucks last fall there are 112 lambs living, with 11 ewes still to come in.

During the week ending April 18 the maximum temperature was 81 and the minimum 27°. There was no precipitation.

Leveling of all plots in field A was completed. Plots to be planted to grain were duckfooted and harrowed. The seeding of oats and wheat in the irrigated rotations and of all grain in the dry-land rotations was also completed.

The last shipment of the feeder lambs from the valley was made during the week. The market was very good: the Sioux City top was over 11 cents a pound.

Over 10,000 acres of sugar beets have been contracted for to date.

Beyer Aune.

Newlands

During the two-week period ending April 18 the average maximum temperature was 75.4, with a maximum of 87; the average minimum was 33.4, with a minimum of 18°. The mean temperature was 54.4°. The average wind velocity was 2.50 miles an hour. There was no precipitation.

*This report was not received in time to include it in the previous issue.

Newlands (cont'd)

Storage of water in Lahontan Reservoir continues to gain at the rate of about 1,000 acre-feet a day in addition to the 800 or 900 second-feet being drawn for irrigation purposes. Another 80,000 acre-feet of water will fill the reservoir to its full storage capacity.

At the station one irrigation has been given to all young alfalfa plantings and all grain plots. About 80 acres were irrigated.

Other field work has included planting a truck garden, repairing levees on the new A series that were blown out during a recent windstorm, cleaning ditches, and putting in drain boxes.

Activities at the State dairy unit have consisted of grinding hay for feed, repairing corrals, and cleaning the premises.

Arrangements are being made for starting the turkey experiments, but the final plans have not been completed.

E. W. Knight.

Prosser

During the week ending April 11 the maximum temperature was 82, mean maximum 70.3, minimum 26, mean minimum 37.3, and the greatest daily range 38°. The mean hourly wind velocity was 4.28 miles.

Soil sifting for wireworms was completed on the rotation plots during the week. One plot of each rotation in the series was sampled. It is planned to have the same plots sampled each year under various crops to determine the effect of cropping on wireworm populations. Soil thermometers with accompanying thermographs were installed at the south end of the crop rotation block to record soil temperatures in the wireworm investigations. The wireworm work is conducted by the staff at the Wireworm Laboratory at Walla Walla, Washington.

A new 8-inch wooden flume was installed on the west side of the station to replace the earthen ditch previously used.

Recent visitors at the station: Dr. C. S. Vandecaveye, Mr. L. T. Kardos, and Mr. C. M. Keaton, of the Department of Agronomy, State College of Washington; Pullman; and Messrs. Lane, Jones, and Gibson, of the Entomology Laboratory at Walla Walla.

One carload of fat steers that were fed on contract at the station were shipped at the end of the week.

During the week ending April 18 the maximum temperature was 87, mean maximum 83.4, minimum 41, mean minimum 47.6, and the greatest daily range 46°. The mean hourly wind velocity was 2.66 miles.

Water was diverted to the station April 13. This is the latest date water has been supplied for several years.

Work during the week included heading-in alfalfa plots, ditching sugar beets in the rotation series, irrigating alfalfa and sweetclover, constructing new flumes and replacing old flumes.

Carl A. Larson.

Scotts Bluff

During the week ending April 11 the average maximum temperature was 46, with a maximum of 66; the average minimum was 23, with a minimum of 1°. The daily wind movement averaged 10.1 miles an hour. There was 0.90 inch of precipitation.

Scotts Bluff (cont'd)

During the week the oat and wheat plots in field K, the oat and sweetclover plots in field E, and rotation 121 have been seeded. The fourth planting of a winter planting test with vegetable crops was made April 11.

Other station activities consisted of plowing and preparing seedbeds for sugar beets. The recent moisture has put the soil in good condition for making excellent seedbeds.

Classes from the high schools of Kimball and Sidney, Nebraska, visited the station and participated in judging contests of horses, cows, sheep, and hogs. The weather instruments at the station were explained to a class from the Victory Hill School of Scottsbluff.

During the week ending April 18 the average maximum temperature was 74, with a maximum of 84; the average minimum was 40, with a minimum of 35°. The daily wind movement averaged 9.9 miles an hour. There was no precipitation.

Sugar beets have been planted in fields K and E and in rotation 121. Fifteen acres of barley and alfalfa have been seeded on the Walker place. A small grain variety test, including oats and barley, has been planted in field H. The varieties of oats included in the test are Nebraska 21, Kanota, Burt 293, Victory, Iogold, and Swedish Select; and the varieties of barley are Trebi, Wisconsin 38, No. 2121, Glabron, Tall Comfort, and Colsess. The plots are approximately one sixth of an acre each in size, and there are three random replications of each variety.

Mr. D. J. Roach, of Scottsbluff, reports that sugar beet farmers had contracted 58,068 acres up to April 17 with the six Great Western Sugar Company factories in western Nebraska, and he expects that 60,000 acres will be contracted before the contract-signing period ends. The acreage in Nebraska is far ahead of last year, when slightly more than 40,000 acres were contracted and about 38,000 acres were harvested.

Officials of the Great Western Sugar Company have announced that the Mitchell sugar factory will be reopened this year as the necessary acreage quota has been pledged.

Lionel Harris.

Umatilla

Under date of April 17 Mr. H. K. Dean reported as follows:

"Climatic conditions during the five-week period ending April 11:

Week ending	Temperatures			Precipitation, inch	Mean wind velocity, miles per hour
	Maximum	Minimum	Mean		
March 14	59	29	44.8	0.01	9.9
March 21	71	31	49.6	.01	8.3
March 28	58	29	42.7	.0	11.0
April 4	56	21	36.7	.44	4.4
April 11	87	37	57.6	.0	10.9

"The amount of snow in the mountains indicates an ample supply of water for irrigation on the Umatilla project this season. It was

Umatilla (cont'd)

not possible to run water into the reservoir during late January and February on account of cold weather and ice conditions. After the water was started again a series of three breaks near Echo prevented use of the canal for about three weeks. The original break was in rock structure which was lined, but the lining had deteriorated so that the water got under it and into the rock seams. This break had to be repaired three times before a satisfactory job was done. The reservoir is about half full at the present time.

"All the cultivated ground has been given one irrigation. The rotation plots have been seeded to sweetclover, which will be turned under either this year or next year.

"Just west of the station some 1500 acres of land has started to blow. This tract has been overgrazed for a number of years, and last year a fire burned off all the vegetation. Three or four feet of sand is piled against the west fence opposite the rotations, and in some places the sand is encroaching on the rotation plots. A second windbreak fence, with straw against it, has been established 50 feet west of the road, and in two weeks' time it has accumulated about a foot of soil.

"Forty-four hardy varieties of apples and plums have been received from the Cheyenne Horticultural Station for planting in the orchard.

"The grass and legume mixtures sown in the pasture plots late in November had favorable moisture conditions during December, January, and February, and as a result there is a good stand. The alfalfa seed tests, outlined by Mr. Westover and Mr. Hastings a year ago, have been planted in fields B-2 and 3.

"Early in March, at the request of Dean Wm. A. Schoenfeld, I attended a preliminary soil conservation conference at Corvallis. Community and county meetings are being held so that farmers may be informed in regard to this program of soil conservation, the principal purpose of which is to persuade farmers to reduce the acreage of soil-depleting crops, such as corn and wheat, and to increase the acreage of soil-building crops, such as clover and alfalfa.

"Mr. M. R. Lewis and Mr. R. A. Work, of the Division of Irrigation, U. S. Bureau of Agricultural Engineering, visited this station a week ago to plan irrigation experiments for this year. Mr. B. F. Dana was here April 2, 3, and 4 to outline the curly-top experiments for this season."

W E E K L Y R E P O R T S

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
Bureau of Plant Industry
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Vol. XXXVIII April 25 and May 2, 1936 No. 9

Belle Fourche

During the week ending April 25 the maximum temperature was 85 and the minimum 28°. The precipitation amounted to 0.17 inch.

The wheat, oats, and barley varieties were planted in fields O and P. The sweetclover pasture in field I and also the young alfalfa in field W were seeded to oats. Seeding oats in sweetclover pastures improves their carrying capacity and also the quality of the pasture.

On April 24 Mr. A. C. Hildreth, of the Cheyenne Horticultural Field Station, brought to this station about 50 apple and plum trees for the cooperative work with fruit.

During the week ending May 2 the maximum temperature was 68 and the minimum 28°. The precipitation amounted to 2.03 inches.

The mixed grass pasture in field O was reseeded to obtain a better stand. On April 30 some 9 inches of snow, amounting to 1.7 inches precipitation, fell. This moisture came just in time to bring up all small grain and beets that had been planted and also materially improved the range conditions.

On account of the rain and snow during the week very little field work could be done. The men were employed in a general cleaning up.

During the week John Robertson, fruit grower and nurseryman, from Hot Springs, South Dakota, visited the station.

Beyer Aune.

Huntley

During the week ending April 25 the maximum temperature was 86 and the minimum 31°. There was 0.41 inch of precipitation.

This was the first rainfall in several weeks, and it was not only of some benefit to spring-seeded crops but it also stopped soil blowing, which was damaging fields to some extent, particularly on dry lands.

Spring seeding is well advanced in most sections of the valley, and a large amount of the sugar beet acreage is seeded. On the Huntley project nearly 6,000 acres of beets have been contracted for, and in the entire Billings factory area about 28,000 acres of beets will be grown. This is about the average acreage of former years except in 1935 when only about 10,000 acres were cropped to beets. Beets are again to be grown under a sliding scale contract, the price depending on the sugar content of beets and the selling price of sugar.

Station work included seeding beets and alfalfa in the irrigated rotation plots and preparing land for grains and other crops.

Huntley (cont'd)

Director F. B. Linfield, of the Montana Agricultural Experiment Station, was a visitor here on April 18.

During the week ending May 2 the maximum temperature was 69 and the minimum 25°. There was a trace of precipitation.

Conditions were favorable for field work during the week, and good progress was made in preparing land and seeding. Due to lack of spring rains there is not sufficient soil moisture, in many cases, for the germination of spring-seeded crops, and irrigation will be required for this purpose. Water was turned into the canals on April 25 and is in general use on the project.

The seeding of most crops, with the exception of beans and corn, is completed in the larger part of the valley.

Station work included preparing land and seeding grains and alfalfa in the rotation plots as well as in miscellaneous fields.

Dan Hansen.

Newlands

During the two-week period ending May 2 the average maximum temperature was 71.2, with a maximum of 81; the average minimum was 39.2, with a minimum of 29°. The mean temperature was 55.2°. The average wind movement was 3.79 miles an hour. There was 0.06 inch of precipitation.

The Lahontan Reservoir contains at the present time 214,000 acre-feet of water. From May 1 to June 28 last year some 70,000 acre-feet of water was stored and the outlook is for as much, if not more, during the corresponding period this year.

At the station sweetclover was seeded on plots A-10 to A-38, inclusive, and on B-23 and B-26. Alfalfa was sown on B-33, B-38, and C-23. Two irrigations during the week covered the entire cropped area of the station. Additional work has included installing several drain boxes, hauling manure, and chopping out weeds.

Farm prices on the project have remained fairly stable during the last two or three months. Butterfat is selling for 28 cents a pound, eggs for 20 cents a dozen, hay for $6.50 a ton, and hogs for 9 cents, beef for 6 cents, and lambs for 8 cents a pound.

E. W. Knight.

Prosser

During the week ending April 25 the maximum temperature was 82, mean maximum 74, minimum 36, mean minimum 43.1, and the greatest daily range 37°. The mean hourly wind velocity was 2.26 miles. The precipitation amounted to 0.17 inch.

The reservoirs of the Yakima Valley irrigation system contained 717,000 acre-feet of water on April 25. There was 44 inches of snow on the ground at Lake Keechelus on that date. The Yakima River is at flood stage, and the flow of water over the Sunnyside diversion dam amounted to 8,000 c.f.s. at the end of the week.

Station activities included irrigating and thinning sugar beets and irrigating alfalfa. W.P.A. laborers have rebuilt the fence north

Prosser (cont'd)

of the apple orchard irrigation plots. At the end of the week these men were placing new posts and gates in the lane to the horse corrals.

Market prices: No. 1 hay, $12.50 per ton baled; U. S. No. 1 potatoes, $26 to $27 per ton, showing a decline of $10 a ton during the last two weeks; butterfat, 27 cents a pound, a decline of 10 cents a pound in two weeks.

During the week ending May 2 the maximum temperature was 75, mean maximum 71.3, minimum 38, mean minimum 43.4, and the greatest daily range 38°. The mean hourly wind velocity was 1.80 miles. Evaporation amounted to 0.969 inch. The total precipitation, including hail and rain, was 0.14 inch. During the first four months of this year the precipitation was 0.78 inch above normal.

Work during the week included thinning and hoeing sugar beets and irrigating wheat plots in the crop rotation series.

The sugar beet acreage in the Yakima Valley this year amounts to 1200 acres. Last year 2800 acres were contracted.

Damage by wireworms to sugar beets on the rotation plots has been severe, and beet thinning has been stopped for the present.

Mr. R. L. Howard, Northwest Manager of the Utah-Idaho Sugar Company, visited the station to observe the plots of sugar beets being grown in the rotations.

Carl A. Larson.

Scotts Bluff

During the week ending April 25 the average maximum temperature was 73, with a maximum of 84; the average minimum was 40, with a minimum of 33°. The daily wind movement averaged 9.7 miles an hour. There was 0.06 inch of precipitation.

Mr. S. B. Nuckols, of the Division of Sugar Plant Investigations, is conducting at this station this year essentially the same type and amount of experimental work with sugar beets as last year. His work consists mainly of:(1) An experiment to determine the effect of previous crops on the yield of sugar beets. This test occupies 5 acres on the Walker place. (2) A manure experiment to determine the effect of various kinds and amounts of manure. (3) Variety tests of sugar beets. The last two tests occupy approximately 7 acres. Beets for these experiments were planted during this week.

Sugar beets have been planted also for an irrigation experiment which is being conducted by Mr. Leslie Bowen, of the Division of Irrigation, Bureau of Agricultural Engineering. This experiment is to determine the proper amounts of water to apply and the best methods of application.

Other station activities included planting early vegetables in the home garden, transplanting raspberries and strawberries, and making the fifth planting of a winter-planting test of vegetable crops.

A carload of lambs, with an average weight of 96 pounds each, was sold at Denver for 12 cents a pound by Jack Emery, of Scottsbluff. This is believed to be the highest price paid at Denver for North Platte Valley lambs in the last five years.

Scotts Bluff (cont'd)

Mr. C. W. Nibler, County Agent, reports that farmers in this area have shown much interest in planting beans this year.

During the week ending May 2 the average maximum temperature was 61, with a maximum of 69; the average minimum was 36, with a minimum of 33°. The daily wind movement averaged 8.8 miles an hour. There was 0.44 inch of precipitation.

The lawn on the station grounds has been plowed and harrowed. During the summer it will be reseeded again. Additional trees and shrubs have been planted on the station grounds, and approximately 60 fruit trees - apples, plums, and cherries - have been planted in the orchard.

Six shoats, weighing 740 pounds, were turned on the third year alfalfa plot in rotation 65 on May 1.

As a result of deficient rainfall up to the present time, alfalfa and the small grain crops have made very slow growth. Sugar beet and alfalfa seed has germinated, but moisture is inadequate for the plants to establish themselves firmly.

Dr. H. M. Tysdal, of the Nebraska Agricultural Experiment Station, transplanted some alfalfa on the station during the week for seed increase and breeding purposes.

Ten carloads of lambs, shipped to St. Joseph on Monday, brought the day's top of $12.25, the highest price paid for Valley lambs since 1930. Two carloads of Valley lambs at Omaha also brought the $12.25 top.

Lionel Harris.

Yuma

During the two-week period ending May 2 the maximum temperature was 100, mean maximum 91.6, minimum 48, and the mean minimum 54.6°. There was no precipitation. For the month of April the mean temperature was 4° above normal and 3° higher than for April 1935.

A few cantaloups are on the market, but the bulk of the crop will not be moved until the latter part of the month.

The second crop of alfalfa hay is being harvested. Baled hay, f.o.b. cars at Yuma, is quoted at $10 to $11 a ton.

Cotton is being planted on those fields which failed to come up to a good stand during the cool and windy weather late in March. The fields in good stand have been cultivated twice and thinning operations are about completed.

The U. S. Geological Survey figures on the discharge of the Colorado River for the month of April show 1,298,000 acre-feet flowing into Lake Mead and 568,000 acre-feet released for downstream needs. The storage of water behind Boulder Dam at the end of April is approximately 4,370,000 acre-feet.

In cooperation with the Division of Forage Crops and Diseases, approximately 200,000 alfalfa plants have been shipped to the Universities of Wisconsin, Nebraska, and Kansas for wilt resistance studies and genetics of alfalfa. The seed is planted in rows at Bard in December. In April the plants are plowed up, packed in crates, and shipped to the various stations. This is the third year of cooperative work with these agencies. Dr. H. M. Tysdal, stationed at Lincoln, Nebraska, was at

Yuma (cont'd)

Bard to superintend the planting in December and was here again in April to handle the shipping.

Station work during the two-week period has included harvesting the second crop of alfalfa, harvesting wheat and barley in the rotation test, cultivating and hoeing cotton, replanting cotton, packing and shipping alfalfa nursery plants, cleaning and repairing sewer system, general irrigating and hoeing.

Station visitors included Dr. T. H. Kearney and R. H. Peebles, of the Cotton Division; Frank Beyschlag and Dan Pubols, of Imperial County; H. V. Dowson, Manager, Hill Bros. Date Garden in Iraq; Roy W. Nixon, of the Government Date Garden, Indio, California; and Messrs. Hamilton and Gray from the old C. M. Ranch at Calexico, California.

E. G. Noble.

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Vol. XXXVIII May 9 and 16, 1936 No. 10

Huntley

During the week ending May 9 the maximum temperature was 91 and the minimum 34°. There was 0.91 inch of precipitation.

This was the first rain of much consequence in several weeks and will be of much benefit to crops recently seeded and should insure good stands without the need of irrigation.

Early seeded beets will be ready for thinning within a week and good stands are in prospect in all parts of the valley. At the station the seeding of all crops except corn, potatoes, and beans was completed.

Mr. J. R. Dawson, of the Bureau of Dairy Industry, and Prof. Clyde McKee, of the Montana Agricultural Experiment Station, were visitors during the week.

During the week ending May 16 the maximum temperature was 95 and the minimum 35°. There was a trace of precipitation.

Conditions were favorable for field work, and the preparation of land for seeding late spring crops was nearly completed. Potatoes and corn were planted in the irrigated rotation plots.

Good stands of spring-seeded grains, alfalfa, and sugar beets were obtained in all of the plots, and so far irrigation has been required only for the old alfalfa.

Station work, other than preparing land and seeding, included irrigation of alfalfa and pastures.

In many sections of the valley grasshoppers are hatching out in large numbers and damage is being reported to newly seeded crops, principally sugar beets and young alfalfa. No damage has yet been observed in station crops or in this immediate vicinity.

Prof. W. E. Morris and Mr. Mitro Afanasiev, of the Montana Agricultural College, were visitors here on May 14.

Dan Hansen.

Newlands

During the two-week period ending May 16 the average maximum temperature was 76.8, with a maximum of 88; the average minimum was 41.9, with a minimum of 33°. The mean temperature was 59.4°. The wind velocity averaged 4.18 miles an hour. There was no precipitation.

The warm weather of the last two weeks has maintained the flow of the Truckee and Carson Rivers at the point reached during recent weeks. The storage in the Lahontan Reservoir continues to gain at a rate of 2,000 or more acre-feet a day. Local people are interested in the pos-

Newlands (cont'd)

sibility that the reservoir will be filled and flow over the spillways.

Project conditions: Present prospects indicate there will be a normal crop of hay this season. Few pests are present and weather conditions are favorable. Enough hay was carried over from last year to affect the market price this year. This condition should again encourage the purchase of livestock. There has been a decided decline in the number of dairy cows on the project during recent years. However, it is expected that cheap hay and a better market for butterfat will tend to reverse this trend.

Station work has consisted of planting corn, chopping out weeds, irrigating, and planting melons, beans, tomatoes, etc. in the garden.

Heretofore the dairy herd on the station has been systematically cleaned of all tubercular reactors and all animals reacting to the Bang's test for abortion. The present plan calls for the removal of all reactors to mastitis tests. This may prove to be rather a large undertaking, but inasmuch as there are about 15 young heifers available for replacing milk cows, it was thought to be an ideal time to undertake the work.

Some 35 weaned pigs have been put in experimental feeding groups. The object of the experiment is to determine the economy of gains of the largest pigs of the litters as compared with the smaller ones, and whether the offspring of certain sows will prove more profitable than the pigs of other individuals.

On May 8 200 turkey poults were received and divided into two equal groups. During the poult stage one group will be fed a ration containing 28 percent protein, and the other group will receive a 21 percent protein feed. Later in the experiment each ration fed the different groups will contain a fixed amount of protein, consisting of varying proportions of animal and vegetable protein in combination.

E. W. Knight.

Prosser

During the week ending May 9 the maximum temperature was 85, mean maximum 73.1, minimum 35, mean minimum 43.3, and the greatest daily range 42°. The mean hourly wind velocity was 2.67 miles. The total evaporation was 1.437 inches. The total precipitation amounted to 0.14 inch.

Water in the reservoirs of the Yakima Valley system has increased 122,000 acre-feet since April 25, making a total of 839,000 acre-feet in the reservoirs on May 9. The capacity of the reservoirs is 1,000,000 acre-feet.

During the week the rotation plots to be planted to corn were irrigated, and the sugar beet plots were cultivated as well as the alleys and roadsides. The apple orchard plots were irrigated for the first time this year during this period.

Mr. Gibson, of the Wireworm Laboratory, was at the station the latter part of the week taking soil samples for moisture determinations on the rotation plots previously sifted for wireworm counts. Mr. Arthur Jacquot, instructor in Agricultural Engineering at the State College of Washington, Pullman, visited the station May 8, accompanied by ten students in an irrigation class, to observe the irrigation methods used at the station.

Prosser (cont'd)

During the week ending May 16 the maximum temperature was 93, mean maximum 81.3, minimum 40, mean minimum 50, and the greatest daily range 44°. The mean hourly wind velocity was 1.43 miles. There was 0.13 inch of precipitation. The total evaporation was 1.568 inches.

The Yakima River is at flood stage. At the middle of the week the flow over the Sunnyside diversion dam was approximately 14,000 second-feet. The highway between Buena and Toppenish is submerged.

During the week alfalfa and sweet clover were seeded on the nurse crop plots and corn was drilled in on all corn plots on the rotation series. Other work included hoeing and irrigating sugar beets.

Carl A. Larson.

Scotts Bluff

During the week ending May 9 the average maximum temperature was 75, with a maximum of 94; the average minimum was 41, with a minimum of 32°. The daily wind movement averaged 10.4 miles an hour. There was 0.24 inch of precipitation.

Station activities during the week consisted of preparing corn land for planting, cleaning ditches, transplanting cabbage and cauliflower plants to the garden, planting trees and shrubs on the station grounds, and fencing sweetclover plots for pasturing tests with sheep.

The sheep were turned on pasture May 9. The sweetclover was 4 to 6 inches high. Two ewes and four lambs, weighing 368 pounds, were turned on the sweetclover plot in rotation 45 in field K, and one ewe and three lambs, weighing 340 pounds, were turned on the sweetclover plot in rotation 41 in field E.

Spring rainfall is still short of normal. Alfalfa and grain crops are making slow growth. Abnormally high winds for this time of the year have damaged spring-seeded crops, particularly sugar beets and grain, to some extent. Beet seedlings have been emerging for the last ten days, and up to May 8, when 0.24 inch of precipitation occurred, the crop was in a critical condition in the presence of strong winds and deficient moisture.

Maple and cottonwood trees leafed out during the week and blossoms appeared on the apple trees.

Mr. A. E. Anderson, State and Federal Crop Statistician, estimated that Nebraska commercial potato growers were paid three million dollars for their 1935 crop. Shipments were heavy but prices only fair, he said.

Lamb sales from the Scotts Bluff region are estimated at nearly $5,000,000. Livestock authorities find that virtually all feeders made a profit this season. More lambs were fed than in the 1935 season, feed generally was more abundant, and prices on the whole were higher.

During the week ending May 16 the average maximum temperature was 75, with a maximum of 94; the average minimum was 44, with a minimum of 32°. The daily wind movement averaged 9.1 miles an hour. There was no precipitation.

On May 16 the Pathfinder and Guernsey Reservoirs held 369,750 acre-feet of water as compared with 282,470 acre-feet on May 31 last year. However, the water this year is needed six weeks earlier than it was last year.

Scotts Bluff (cont'd)

Water was delivered to the station May 14. It was utilized during the remainder of the week in irrigating beets and alfalfa. No precipitation of consequence has occurred here since June 1935. The soil is extremely dry, and hot winds have been blowing and causing serious damage to the small beet seedlings. Small grain crops have made no growth at all.

Other station activities included planting corn on the rotation plots and on the Walker place for silage and early potatoes for a spraying experiment to endeavor to control psyllids. A variety test of potatoes has also been planted.

Lionel Harris.

WEEKLY REPORTS

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Vol. XXXVIII May 23 and 30, 1936 No. 11

Belle Fourche

During the month of May the maximum temperature was 95° and the minimum 27° on May 1, which was the last killing frost. The precipitation for the month was 0.05 inch, the lowest on record. The average precipitation during May for 28 years has been 3.06 inches. The evaporation from a free-water surface for May was 6.867 inches, the fourth highest on record. This month's 28-year average is 5.473 inches.

Irrigation water was turned into the canals on May 20, and the irrigation of alfalfa was begun on May 27. The Orman Reservoir contained only about 80,000 acre-feet at the time water was turned into the canals. At this time no storage water is coming in and none is available unless heavy rains occur at the headwaters of the Redwater and Belle Fourche Rivers.

The allotment of irrigation water for the season, based on the present available supply in the Orman Dam, is set at 8 inches per acre, and 70 percent of this allotment may be used before August 1. This amount of water is too small to mature a crop, as only one or at the most two irrigations could be applied. If rain does not come in the next few days, it will be necessary to abandon some of the crops planted because of shortage of water.

It is expected that further drilling operations on the artesian well, for the purpose of piercing the Minnelusa sandstone, will be resumed in about three weeks.

Beyer Aune.

Huntley

During the two-week period ending May 30 the maximum temperature was 96 and the minimum 34°. There was 0.02 inch of precipitation.

Drought and hot weather during this period made irrigation requirements high, and rotation delivery of water was necessary. Sugar beets in most sections are being irrigated before thinning.

Damage to crops by grasshoppers is becoming rather serious in most parts of the valley. Poison bait is being put out from mixing plants at Billings and Ballantine. This material is furnished by Yellowstone County at one-half the cost and is being used generally by most of the farmers. Drought and grasshopper damage to range land is cutting feed supplies short, and there will probably be an early movement of range stock to market or to other grazing sections.

Station work included construction of field ditches and irrigation of alfalfa and beets. Mr. Mitrofan Afanasiev, of the Biology Department of the Montana Agricultural Experiment Station, spent several days at the station on cooperative work with beans and other crops.

Huntley (cont'd)

It is reported that the Rural Electrification Administration has allotted funds for the construction of an electric power line from Billings to cover the territory on the Billings Bench, Lockwood, and Huntley projects and that this line will be constructed during the present season.

Dan Hansen.

Newlands

During the two-week period ending May 30 the average maximum temperature was 75.1, with a maximum of 90; the average minimum was 41.3, with a minimum of 32°. The mean temperature was 58.3°. The average wind velocity was 3.67 miles an hour. There was 0.65 inch of precipitation.

The last three days of this period have been stormy. The sky remained cloudy with occasional rain accompanied by rather cool winds. This weather has brought irrigating almost to a standstill. Lahontan Reservoir is gaining in storage at a rate exceeding recent measurements, and another 20,000 acre-feet of water will fill it to its capacity.

The station area had been irrigated a few days prior to this rainy period. As a result all crops are thoroughly wet and little drying of the soil has occurred. The crops would be benefited now by clear weather.

The two local camps of C.C.C. boys have completed a large part of the planned structure building and canal cleaning for the local irrigation district. A program of eradicating noxious weeds, particularly whitetop, has been approved and probably will soon be underway. Whitetop is a very hardy, long lived weed, which competes readily with all crops even to the extent of establishing itself at the cost of old alfalfa plantings. This campaign of weed eradication, if successfully carried out, will be of great benefit to certain areas of this project.

One particularly interesting and worth-while project being accomplished by these C.C.C. boys is the eradication of gophers. Great progress is being made on the project in ridding farms of this pest.

Station activities have consisted of replanting field corn destroyed by pheasants, cleaning ditches, and hauling manure. Mr. M. A. McCall, Assistant Chief of the Bureau of Plant Industry, visited the station on May 29. He drove down from Reno with Mr. F. B. Headley.

E. W. Knight.

Prosser

During the week ending May 23 the maximum temperature was 83, mean maximum 74.4, minimum 35, mean minimum 41, and the greatest daily range 42°. The mean hourly wind velocity was 2.75 miles. The total evaporation was 1.528 inches.

Soil samples were taken on the reclamation plots near Mabton.

Market prices: Baled hay, $12.50 a ton; No. 1 potatoes with sacks, $58 a ton; barley and oats, $22 and $21 per ton, respectively; hops, baled, 12½ cents a pound; eggs, 15 cents a dozen; and butterfat, 27 cents a pound.

During the week ending May 30 the maximum temperature was 98, mean maximum 85.1, minimum 43, mean minimum 52.1, and the greatest daily range 45°. The mean hourly wind velocity was 1.17 miles. The precipitation amounted to 0.04 inch. The total evaporation was 1.318 inches.

Prosser (cont'd)

Potato plots were plowed and planting was startedduring the week. Potatoes were also planted on farm fields. Mr. Walter J. Clore has resumed his research studies in horticulture at the station.

Carl A. Larson.

Scotts Bluff

During the week ending May 23 the average maximum temperature was 81, with a maximum of 90; the average minimum was 46, with a minimum of 39°. The daily wind movement averaged nine miles an hour. There was 0.24 inch of precipitation.

On May 22 the Pathfinder and Guernsey Reservoirs contained 370,150 acre-feet of water. The present indications are that there will not be as much water as was expected earlier in the year. The board of directors of the Pathfinder Irrigation District have limited the allotment to 1½ acre-feet per acre, and even less than this amount may be available for distribution. The final amount available depends on the extent of the inflow into the dam during the next month. Last year 1.13 acre-feet per acre was delivered to irrigators under the Government ditch.

No rainfall of consequence has occurred this spring. During the week irrigation water has been run on sugar beet, grain, and alfalfa plots. The grain, although only 3 to 5 inches tall, was badly in need of water.

The sugar beet plots following sweetclover in field E have been reseeded. The first planted beets were almost completely ruined by the second growth of sweetclover. The plots were disked and irrigated before reseeding. Other station activities included cultivating beets and weeding around the station buildings.

During the week ending May 30 the average maximum temperature was 77, with a maximum of 84; the average minimum was 51, with a minimum of 40°. The daily wind movement averaged 9.8 miles an hour. There was 0.18 inch of precipitation.

During the week the grain plots in field E and the grain variety tests were irrigated. Most of the beet plots in field K and the beets in Mr. Nuckols' manure experiment have been thinned. Sweet corn, onion, and tomato variety tests have been planted at the station for Dr. Werner. The sixth planting of a winter planting test of vegetable crops was made May 25.

Frank A. Kemp, formerly of Scottsbluff, was elected President of the Great Western Sugar Company. He also retains the post of General Manager.

Of 60,000 acres of sugar beets planted this year in the Nebraska district of the Great Western Sugar Company, prospects indicate an excellent crop on 40,000 acres, according to Mr. D. J. Roach, Manager of the Nebraska district. Because of the lack of spring rainfall 20,000 acres of beets were lost.

On May 29 the storage of water in the Pathfinder and Guernsey Reservoirs amounted to 379,430 acre-feet. The inflow and outflow for the Pathfinder Reservoir was 6,685 and 6,062 second-feet, respectively.

Lionel Harris.

Yuma

During the two-week period ending May 30 the maximum temperature was 105, mean maximum 97.4, minimum 53, and mean minimum 56.7°. There was no precipitation. The mean temperature for the month of May was 6° warmer than May 1935 and 4.4° above normal.

Project activities have included harvesting the third cutting of alfalfa, shipping cantaloups at the rate of about 30 carloads a day, and preparing land for milo and hegari plantings. Shipments of grapefruit from the Yuma Mesa district were completed the middle of May.

Station activities during the two-week period have included cutting the third crop of alfalfa, thinning and cultivating cotton, removing date off-shoots, painting buildings, general hoeing and irrigating. Twenty large seedling date palms from the north station road were moved by the U. S. Bureau of Reclamation for planting at the Imperial Dam town site.

The U. S. Geological Survey reports the flow of the Colorado River at Grand Canyon for the month of May to have been 3,580,000 acre-feet. The amount of water released through Boulder Dam during the month was 534,000 acre-feet. At the end of May Lake Mead contained 7,250,000 acre-feet of water.

Messrs. George R. Boyd and D. W. A. Bloodgood, of the Bureau of Agricultural Engineering, visited the station on May 24 and 25.

E. G. Noble.

M I S C E L L A N E O U S

Mr. Thomas S. Higgs, Junior Clerk, who has been an employee of this Division since November 1, 1931, was transferred June 1 to the Division of Plant Exploration and Introduction, with headquarters at Savannah, Georgia.

Mr. Alfred Lorenzini has been transferred from the Division of Drug and Related Plants to the Division of Western Irrigation Agriculture to fill the position left vacant by the transfer of Mr. Higgs.

WEEKLY REPORTS

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
Bureau of Plant Industry
United States Department of Agriculture

Vol. XXXVIII June 6 and 13, 1936 No. 12

Belle Fourche

During the week ending June 6 the maximum temperature was 86 and the minimum 44°. There was 0.03 inch of precipitation.

During the week Sudan grass was seeded in field Y and amber cane in field G. The planting of potatoes in the irrigated rotations has been completed. The stand of sugar beets in field A was very uneven, and it was necessary to furrow and irrigate the beets before thinning. The irrigation of alfalfa and pastures was continued during the week.

During the week ending June 13 the maximum temperature was 94 and the minimum 39°. There was 0.22 inch of precipitation.

The small grain in field A, in the irrigated rotations, and in field O was irrigated. Due to a shortage of water it was necessary to abandon some 25 acres of grain in field P and also some 15 acres of alfalfa in field W.

Since April 30 there has been a total precipitation of 0.28 inch, the lowest on record. Crop conditions are bad on the project due to a shortage of water in the Orman Reservoir. Range conditions are the most serious in years, both as to water and feed. It will be necessary to move out a large amount of the livestock if there is no change in the climatic conditions at an early date.

Beyer Aune.

Huntley

During the two-week period ending June 13 the maximum temperature was 96 and the minimum 39°. The precipitation amounted to 1.78 inches.

This rainfall was of much benefit to crops and lessened the demand for irrigation, which was unusually heavy during the preceding month. Although the thinning of sugar beets was delayed somewhat by the rains, this work is nearing completion in most sections.

Damage to crops by grasshoppers continues to be rather severe, and large amounts of hopper poison are being put out by the county mixing stations at Billings and Ballantine. In addition to the use of poisoned bait, a number of farmers are using hopper catchers.

At the station the damage to crops by grasshoppers has occurred principally in new alfalfa stands and to a less extent in old alfalfa and sugar beets.

Station work during this period included irrigating alfalfa, grain, and sugar beets and cultivating row crops.

Dan Hansen.

Newlands

During the two-week period ending June 13 the average maximum temperature was 73.6, with a maximum of 90; the average minimum was 46.6, with a minimum of 39°. The mean temperature was 60.1°. The average wind velocity was 3.24 miles an hour. There was 0.93 inch of precipitation.

The cool, stormy weather during this period has resulted in a decrease in the usual yields of the first cutting of hay. At the station it is thought that the first cutting will be about 70 percent of the anticipated yield. However, as some 2000 tons of hay were carried over from last year, a little less hay on the project may be an advantage. This surplus, with prospects of a heavy crop this year, has resulted in a price at the present time of $5.00 per ton in the stack.

The Lahontan Reservoir has finally reached its full storage capacity of 274,000 acre-feet of water. One-foot splash boards have been installed on the crest of the spillways so that an additional 13,000 acre-feet of storage may be obtained. This is the second time in the history of the reservoir that it has reached its full storage capacity. In 1922 water flowed over the spillways for the first time.

Station work has consisted of cultivating corn, cutting first crop hay, cleaning ditches, and irrigating.

Mr. Elmer Bogart, a recent graduate of California Agricultural College, has been employed by the Nevada Agricultural Experiment Station as an assistant with the dairy herd. At present a great deal of his time will be devoted to clearing the dairy herd of all reactors to mastitis tests. The more severe cases will be sold to the butcher, but an attempt will be made to cure the milder cases and immunize heifers as they are added to the milking herd. The immunization and treatments will be given by the Nevada State Veterinarian.

E. W. Knight.

Prosser

During the week ending June 6 the maximum temperature was 80, mean maximum 69.4, minimum 48, mean minimum 51.1, and the greatest daily range 30°. The mean hourly wind velocity was 1.27 miles an hour. Precipitation amounted to 0.43 inch, and the total evaporation to 0.83 inch. The rainfall so far this month has already passed the normal amount, which is 0.41 inch.

The rainy weather has caused severe damage to the cherries in the irrigated districts of eastern Washington. In the Wenatchee district this crop was almost a total loss. In the Kennewick district approximately 3 percent of the crop was damaged by cracks and 8 percent by winds. Damage to cherries in the Yakima district ranges from 20 to 50 percent.

Routine field work was continued on the crop rotation plots during the week. Potato planting in the rotations was completed June 1.

The price for potato futures is $50 a ton. The new crop of early potatoes from the Kennewick district is expected to come on the market soon.

During the week ending June 13 the maximum temperature was 87, mean maximum 81, minimum 46, mean minimum 53.3, and the greatest daily range 33°. The mean hourly wind velocity was 1.09 miles. The total evaporation was 1.174 inches, and the rainfall amounted to 0.24 inch.

Prosser (cont'd)

The alfalfa plots in the rotation series were cut and weighed during the week. Nine of the 24 plots yielded more than 3 tons per acre of field-dry hay. Seven of the plots yielded more than $2\frac{1}{2}$ tons per acre. The yield from fall-seeded plots ranged from 1 to $1\frac{1}{2}$ tons per acre. Other work in the rotation series included chopping weeds along flume lines and cultivating head ends and roads. Corn on the rotation plots has been damaged severely by wireworms.

Cherries grown on the station were not picked this year. Seventy percent of the Bings were culls. Cherry growers near Zillah, in the upper Yakima Valley, stopped picking because 60 to 75 percent of the cherries were culls due to damage by rain. Bing cherries are bringing the growers 6 cents a pound. The culls of this variety bring the grower $\frac{1}{2}$ cent a pound. Royal Ann cherries were sold by the growers for the following prices a pound: No. 1, $4\frac{1}{2}$ cents; No. 2, $2\frac{1}{2}$ cents; and No. 3, $1\frac{1}{2}$ cents.

U. S. No. 1 potatoes with sacks are bringing the grower $85 to $90 a ton f.o.b. car. The retail price for old potatoes is $5 a cwt. in Yakima. In the early potato district near Kennewick growers are holding new potatoes for $85 to $90 a ton. Butterfat is now 31 cents a pound. Alfalfa hay is $12.50 a ton, baled, f.o.b. car.

Carl A. Larson.

Scotts Bluff

During the week ending June 6 the average maximum temperature was 71, with a maximum of 89; the average minimum was 47, with a minimum of 37°. The daily wind movement averaged 9.5 miles an hour. The precipitation amounted to 1.27 inches.

On June 6 the Pathfinder and Guernsey reservoirs contained 441,360 acre-feet of water. The inflow into the Pathfinder was 6,568 second-feet and the outflow was 2,393 second-feet. In view of the prolonged spring drought and the shortage of storage water, the precipitation during the week was the most significant feature in crop production on this project to date this season.

The small grain and alfalfa were irrigated during the week. Most of the sugar beets at the station have been thinned and cultivated. Green manure plots have been plowed for potatoes. A sorghum variety test has been planted on the dry land.

Dr. H. M. Tysdal and Mr. Leland A. Clark were at the station this week in connection with an alfalfa breeding and seed production program.

This week Nebraska became the fortieth State in the Union to be accredited as completely free of bovine tuberculosis.

Lionel Harris.

M I S C E L L A N E O U S

"Irrigated Crop Rotations in Western Nebraska, 1912-34", by Mr. Stephen H. Hastings, has been published as Technical Bulletin No. 512 of the U. S. Department of Agriculture.

WEEKLY REPORTS

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Vol. XXXVIII June 20 and 27, 1936 No. 13

Huntley

During the week ending June 20 the maximum temperature was 98 and the minimum 42°. There was 0.02 inch of precipitation.

The weather continued hot and dry, and there was a consequent heavy demand for irrigation. The supply of irrigation water for the Huntley project appears to be adequate, with no indication that there will be a shortage at any time during the season.

Range conditions over the eastern part of the State are reported to be poor, and there is a serious shortage of feed due to drought and grasshopper damage. Large numbers of cattle are being sent to market from this area because of the lack of feed. On the Huntley project crops are in only fair condition and the first cutting of alfalfa is short.

Station work during the week included irrigating grains and harvesting the first cutting of alfalfa.

Dan Hansen.

Newlands

During the two-week period ending June 27 the average maximum temperature was 91, with a maximum of 101; the average minimum was 52.2, with a minimum of 44°. The mean temperature was 71.6°. The wind velocity averaged 3.84 miles an hour. There was no precipitation.

The temperature of 101° on June 22 was the highest June temperature since 1926 when a maximum of 101° was recorded. The highest June temperature ever recorded at this station was in 1922 when the thermometer registered 102°. The all-time high of 106° was recorded in July 1931.

Most of the first crop of hay on the project has been harvested. The yields were fair but not so large as was estimated during early summer. The small amount of hay that is being sold is bringing $5.00 a ton in the stack. The present outlook indicates continued low prices for hay, which should encourage livestock feeding enterprises.

The work at the station has consisted of hoeing corn, hauling manure, and harvesting the first crop of hay. The yields of hay on the various alfalfa plots ranged from a low of 1300 pounds an acre to a high of 4000 pounds an acre.

The turkey poults have about finished their first eight weeks. To date the losses have been 8 percent. Those turkeys receiving a 28 percent protein feed have produced normal growth and have eaten a little more feed than estimated. The group receiving 21 percent protein average about one half pound less weight per bird and each bird has eaten on the average about three fourths of a pound of mash less than the higher protein group. A few more days will end the poult feeding stage; then the two groups will be further divided and given various feed combinations. The total protein con-

Newlands (cont'd)

tent of the feed will be maintained at 24 percent in all groups, but the protein portion of the ration will vary from one carrying 66 percent from animal sources to one having 8 percent. The rest of the total will be made up of protein from vegetable sources.

E. W. Knight.

Prosser

During the two-week period ending June 27 the maximum temperature was 99, mean maximum 86.1, minimum 43, mean minimum 53.8, and the greatest daily range 43°. The mean hourly wind velocity was 2.01 miles. Precipitation amounted to 0.11 inch. The total evaporation was 3.646 inches.

Routine field work was performed on the crop rotation plots. The last of the first cutting of hay was stacked June 25. Apple thinning in the station apple orchard is still in progress.

Market prices: New potatoes, $50 a ton with sacks, showing a decline of $30 a ton during the two-week period; alfalfa hay, $6.50 a ton in the stack, showing a decline of $3.50 a ton since the first cutting of new hay began.

Carl A. Larson.

Scotts Bluff

During the week ending June 20 the average maximum temperature was 93, with a maximum of 104; the average minimum was 59, with a minimum of 50°. The daily wind movement averaged 8.5 miles an hour. There was no precipitation.

The combined storage in the Pathfinder and Guernsey reservoirs on June 20 was 512,230 acre-feet. The inflow into the Pathfinder was 3,661 second-feet and the outflow 4,040 second-feet.

Station activities have included cultivating sugar beets, hauling hay, and planting potatoes. The first cutting of hay has been stacked. No delays resulting from rainy weather were experienced, and none of the hay was damaged by rain. Potatoes have been planted in fields K and E and some on the Walker place. Dr. H. O. Werner visited the station during the week and planted potatoes for a variety test, a spraying test, a twin-row planting test, and a breeding test. Dr. Werner has a graduate assistant, Mr. Leman Harvey, located at the station this summer to take charge of his vegetable and potato experimental work.

The foundation for a 10-ton truck scale, being installed here, was constructed during the week.

At the end of the week water was turned into the laterals of the Government canal again and was received at the station on Saturday. Grain crops are heading and are in need of a second irrigation.

Mr. Fred F. Bateman, builder of Iron Age machinery, visited the station with reference to the twin-row planting test being conducted by Dr. Werner.

During the week ending June 27 the average maximum temperature was 94, with a maximum of 100; the average minimum was 61, with a minimum of 55°. The daily wind movement averaged 6.3 miles an hour. There was no precipitation.

Scotts Bluff (cont'd)

During the week the grain plots in fields K and E and the alfalfa plots in field K have been irrigated for the second time this season. Our allotment of water at the present time seems likely not to be over $1\frac{1}{4}$ acre-feet.

Potato planting at the station was completed on June 26. Other station activities included cultivating dry land corn and cane and irrigated corn and early potatoes, weeding and cultivating sugar beets.

The weather has been unusually hot for this time in June.

The new truck scale for the station has been installed.

Eight irrigated farms in Scotts Bluff County that were sold at public auction brought a total of $60,000. The highest price paid was $109 an acre.

A meeting of the Colorado-Nebraska Lamb Feeders' Association will be held June 30 at Greeley, Colorado.

The combined storage of water in the Pathfinder and Guernsey reservoirs on June 27 was 459,900 acre-feet. The inflow into the Pathfinder was 2,007 second-feet and the outflow was 5,782 second-feet.

Lionel Harris.

Umatilla

Under date of June 20 Mr. H. K. Dean reported as follows:

"This has not been a favorable growing season so far. The crops at present are somewhat behind the development of an ordinary year. Heavy rains in the mountains have helped the water situation considerably, but storage is 15 or 20 percent short of what would be desired. With careful handling the amount of water should be sufficient.

"Pyrethrum did much better this year than last. The first crop was harvested late in May with a binder, to determine the practicability of this method. It is very expensive to pick heads individually as is customary in foreign countries where the crop is grown commercially; and if we are to produce the crop profitably in this country, it appears that other methods of harvesting must be worked out.

"The old sagebrush fields had run down considerably, so new plants were grown for the establishment of approximately 25 acres.

"In cooperation with Mr. John H. Martin, of the Division of Cereal Crops and Diseases, five varieties of broomcorn are being grown. On this project there has been considerable interest in this crop during the last two years.

"Most of the trees and shrubs planted to mask the farm buildings are well established.

"Mr. B. F. Dana spent ten days here establishing his plantings, which include over a thousand selections of beans. He replanted the promising strains of tomatoes. A number of new squash and cucumbers not previously tested were planted. Cloth and lattice shades have been built in an attempt to produce conditions which appear to be favorable for preventing or resisting the curly-top disease in tomatoes. Mr. M. R. Lewis wants to try a new sprinkler system consisting essentially of fine holes bored in the old type slip-joint pipe. I did not feel that this method would have any particularl possibility in our general irrigation, but it might create conditions favorable for the resistance of curly-top; so we will grow tomatoes, beans, and squash under the system this year.

Umatilla (cont'd)

"Dr. J. R. Haag, Nutrition Chemist, and Dr. I. R. Jones, of the Oregon Agricultural College, spent two days at the station on the dairy work. The cows were bled for blood phosphorus analyses. The blood phosphorus is somewhat higher than it was two years ago, possibly due to the disodium phosphate we have been using.

"Dr. M. A. McCall visited the station early in June with a view to acquainting himself with some of our problems. Mr. George R. Boyd, Assistant Chief of the Bureau of Agricultural Engineering, and Mr. M. R. Lewis also recently visited the station."

Climatic conditions during the week ending June 27:

Temperatures			Precipitation	Mean wind velocity, miles per hour
Maximum	Minimum	Mean		
102	58	79.1	None	4.2

During the week the turkeys were taken from the brooder houses and segregated into groups. The experiments this year will include groups having 24 percent, 21 percent, and 18 percent mash and scratch, with one group on scratch and milk only. This is a repetition of last year's rations, but in addition this year the toms and hens will be in separate lots to determine their relative feed requirements and gains.

A slip-joint sprinkler system furnished by Irrigation Investigations, Bureau of Agricultural Engineering, was installed in the curly-top experiments. The sprinkler system will have a two-fold purpose: First, that of irrigation; and second, that of determining the possibility of controlling curly-top by frequent sprinkling, thus making unfavorable conditions for the hoppers and favorable conditions for the plants.

There has been a migration of leaf-hoppers from the desert areas, and they are now present in large numbers in the test plots. During the week many of the bean selections and tomatoes developed symptoms and went down rapidly during the hot weather. So far the resistant squashes have not shown symptoms.

Routine work consisted of irrigating, weeding, cleaning ditches, and repairing fences.

The Federal Archives survey of unpublished records of the station was made during the week.

Station visitors were Mr. B. F. Dana, of the Division of Fruit and Vegetable Crops and Diseases; E. L. Potter, R. G. Johnson, and R. W. Morse, of the Oregon Agricultural College.

H. K. Dean.

Yuma

During the two-week period ending June 27 the maximum temperature was 116, mean maximum 109, minimum 64, mean minimum 73.5, and the mean 91.3°. There was no precipitation.

During the month of June the mean temperature was 88°. This is 3.3° above normal and 0.2° warmer than June 1935. The total precipitation for the year to date is 0.80 inch. There has been no rain in this section during April, May, and June.

Yuma (cont'd)

The cantaloup season is nearly over, and 1184 carloads have been shipped. Harvest of alfalfa seed has begun on the project, with good yields indicated from those fields turned to seed early in the year. The cotton crop generally is in good condition.

The U. S. Geological Survey reports the discharge of the Colorado River at Grand Canyon to be 2,600,000 acre-feet for June 1936; for the same period last year it was 4,034,000 acre-feet. The amount of water released at Boulder Dam for the month of June was 560,000 acre-feet, leaving in storage as of June 30 8,975,000 acre-feet.

Station work performed during this period has included harvesting the fourth crop of alfalfa hay, harvesting sweetclover seed, planting milo in the rotation test and grain sorghum varieties in the nursery blocks, cultivating cotton, taking cotton notes, writing station report, general cultivating and irrigating.

Dr. Frank M. Eaton and Mr. L. V. Wilcox, of the Rubidoux Laboratory; Mr. J. B. Lippincott, Consulting Engineer of Los Angeles; Mr. K. A. Ryerson, of the Division of Fruit and Vegetable Crops and Diseases; Prof. E. E. Thomas and Mr. W. R. Schoonover, of the California Citrus Experiment Station, were project and station visitors on June 25. Mr. L. L. Stitt, Junior Entomologist from the Federal Field Laboratory at Tempe, Arizona, visited the station June 26. Prof. I. A. Briggs, of the Division of Agronomy, University of Arizona, was a station visitor June 27.

E. G. Noble.

M I S C E L L A N E O U S

Mr. S. H. Hastings left Washington on July 3 for the purpose of inspecting the work being done at the field stations of this Division in the West and Northwest. He expects to return to Washington early in August.

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Vol. XXXVIII July 4 and 11, 1936 No. 14

Belle Fourche

During the week ending July 11 the maximum temperature was 110 and the minimum 64°. There was 0.49 inch of precipitation.

For ten weeks there have been no rains of any value to growing crops. From July 3 to July 11, inclusive, the temperature was 100° or over, with a maximum of 110° on July 6, which is the highest temperature recorded for 28 years.

Due to the extreme heat and to the shortage of irrigation water, the first cutting of alfalfa was 76 percent of normal. Those who have alfalfa to sell indicate they will ask $15 or more a ton.

Alfalfa, some of the small grains, sugar beets, and potatoes were irrigated during the week. The final thinning of sugar beets was completed. Sugar beets that were planted early are in good condition. Late planted beets came up with a poor stand and a considerable acreage was abandoned. At the present time it appears that some 6000 acres of beets in the district will be harvested.

On July 6 the drilling of the artesian well was resumed for the purpose of piercing the Minnelusa sandstone at a depth of about 3700 feet.

Beyer Aune.

Huntley

During the week ending July 4 the maximum temperature was 104 and the minimum 47°. There was no precipitation.

The continued drought and hot weather, together with damage by grasshoppers and other insect pests, have resulted in further injury to crops. On dry lands in the southeastern section of the State the crop loss is almost complete, and there is a continuous movement of livestock to market or to other sections where feed is available.

The condition of crops in irrigated sections is much below average. The yield of the first cutting of alfalfa was probably not more than 50 percent of normal, and the second crop is starting slowly due to grasshopper injury.

Alfalfa hay is selling locally for $15 a ton, with prospects of higher prices later in the season.

Station work included the irrigation of all crops and the cultivation of row crops.

Dr. A. L. Strand and Mr. J. H. Pepper, of the Entomology Department of the Montana Agricultural Experiment Station, visited the station this week.

Dan Hansen.

Newlands

During the two-week period ending July 11 the average maximum temperature was 88, with a maximum of 97 on July 1 and 4; the average minimum was 51.9, with a minimum of 47° on June 28 and 29. The mean temperature was 69.9°. The wind velocity averaged 3.49 miles an hour. There was 0.09 inch of precipitation.

So far during July the temperatures have been below normal and have retarded the growth of alfalfa.

At the station all corn plots have been hoed and cultivated. Some barley plots have been cut. The rest of the barley, as well as the rye and wheat, will be harvested during the next week or ten days. Some varieties mature later than others, thus making it necessary to continue grain cutting over a rather long period. In addition to cultivating crops and harvesting barley, there has been one general irrigation and some further cleaning of ditches.

The second period of the turkey experiment has begun. The turkeys were divided into six groups: five normal groups and one group of culls. All groups will receive a ration containing 24 percent protein for a period of eight weeks, but the protein content of each ration will vary from 7 percent to 66 percent in the amount of animal protein.

The task of clearing the dairy herd of mastitis is continuing. The veterinary department of the Nevada Agricultural Experiment Station is making vaccines from the cultured organisms present in the milk from infected cows. Some of the worst cases are being sold to the butcher, and all reactors are isolated from those free of the disease.

The hog-feeding experiments should be completed in another month. Satisfactory growth is being made. At present prices a good profit should be realized on the feeds being used.

E. W. Knight.

Prosser

During the week ending July 4 the maximum temperature was 93, mean maximum 85, minimum 43, mean minimum 53, and the greatest daily range 39°. The mean hourly wind velocity was 3.06 miles. The total evaporation was 1.894 inches. The rainfall amounted to 0.04 inch.

The Sixteenth Annual Field Day will be held July 8. Preparations for the annual visit of farmers were being made during the week.

Market prices: No. 1 potatoes, $37.50 a ton; hay in the stack, $6.50 a ton; wheat, soft white, 70 cents a bushel; futures on barley and oats, $18 a ton; hops, baled, 10 to 20 cents a pound; butterfat, 34 cents a pound.

During the week ending July 11 the maximum temperature was 87, mean maximum 81.1, minimum 46, mean minimum 52, and the greatest daily range 40°. The mean hourly wind velocity was 1.94 miles. The total evaporation was 1.609 inches. The precipitation amounted to 0.03 inch.

The Sixteenth Annual Field Day was held July 8 at the Irrigation Branch Experiment Station. There were 110 visitors. Considerable interest was shown in crop rotation, sugar beet varieties, and cooperative work on wireworm control.

Work on the rotation plots this week included chopping out weeds in the roadways and irrigating new seedings of alfalfa and sweetclover.

Prosser (cont'd)

Two test wells were installed in the Sunnyside school grounds, previously called Sunnyside Park, to study the water table and its salt content. The first two samples of ground water taken from the wells show specific conductances of 105 and 55, respectively. A W.P.A. project is in progress on this area. A sprinkler system has been installed, the area leveled, manured, a 6-inch layer of sagebrush soil applied, and seeded with blue grass and white clover.

Construction work on the Roza unit of the Yakima reclamation project is progressing rapidly. Most of the work so far has been confined to boring tunnel No. 1. Contracts will soon be let for the diversion dam in the Yakima River and also the conduit across the river north of the city of Yakima.

Top prices for livestock in Yakima: Prime steers $6.00, choice hogs $11, and good to choice lambs $7.50 per hundred pounds. No. 1 potatoes increased $2.50 a ton during the week and are now $40 a ton. Oats and barley increased $3 and $2 a ton, respectively, and are now $21 and $20 a ton.

Carl A. Larson.

Scotts Bluff

During the week ending July 4 the average maximum temperature was 95, with a maximum of 104; the average minimum was 59, with a minimum of 51°. The daily wind movement averaged 5.5 miles an hour. There was no precipitation.

During the week sugar beets at the station have been irrigated the second time. Corn on the plots in field K has been irrigated the first time. Other station activities included cultivating corn and cane and weeding beets.

Potatoes planted the middle of June emerged during the week. Although the seed pieces are still in moist soil, the potato stalks had to grow through 3 or 4 inches of very dry and hot soil. Many of the tender stalks have been burned by the heat, and the indications are now that only fair stands may be expected.

The combined storage of water in the Pathfinder and Guernsey reservoirs as of July 4 was 416,330 acre-feet. The inflow into the Pathfinder was 1126 second-feet and the outflow was 4530 second-feet.

Mr. A. E. Anderson, State and Federal Crop Statistician, says that the 1936 spring hog crop showed an increase of 56 percent over last year.

During the week ending July 11 the average maximum temperature was 101, with a maximum of 106; the average minimum was 63, with a minimum of 60°. The daily wind movement averaged 5.4 miles an hour. There was no precipitation.

Station activities during the week included weeding and cultivating beets and irrigating potatoes. The irrigation of potatoes was necessary to save the potato plants as they emerged through an extremely hot and dry soil. Potatoes planted the 10th of June this year have produced much better stands than those planted the 15th, which is normally considered the best time for planting the late crop. Potatoes planted June 15 were emerging during a period of extreme heat, whereas those planted June 10 had established themselves before the onset of the adverse weather.

Scotts Bluff (cont'd)

The winter wheat has been harvested. The oat crop has been cut in rotations 1, 27, 31, 30, 32, and 16. In the other rotations it was not ripe enough to cut during the week.

The combined storage of water in the Pathfinder and Guernsey reservoirs as of July 11 was 362,020 acre-feet. The inflow into the Pathfinder was 491 second-feet and the outflow was 4,516 second-feet.

Mr. S. H. Hastings, Principal Agronomist, of the Division of Western Irrigation Agriculture, and Dean W. W. Burr, of the University of Nebraska, were at the station on July 6 and 7.

The first cutting of alfalfa in field K yielded an average of 1.93 tons per acre.

Lionel Harris.

M I S C E L L A N E O U S

Mr. C. S. Scofield is planning to leave Washington July 27 on a western field trip, which will include points in Montana, Colorado, New Mexico, and Texas. He expects to return to Washington late in August.

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Vol. XXXVIII July 18 and 25, 1936 No. 15

Belle Fourche

During the week ending July 18 the maximum temperature was 105 and the minimum 55°. There was 0.09 inch of precipitation. Temperatures of 100° or over have been recorded on 14 days during July.

The barley and oats were harvested in the maximum production experiment and in field A. A cement floor was finished in the new machine shed.

The 21st annual farm picnic was held on July 18. Over 1000 cars were checked in through the gate during the day and evening.

The water will be shut out of all the canals for a period of ten days starting July 20. Over 80 percent of all the available water has been used to date.

It is reported that alfalfa hay is selling for $15 a ton in the stack.

Beyer Aune.

Huntley

During the two-week period ending July 18 the maximum temperature was 105 and the minimum 52°.

A rainfall of 0.87 inch on July 11 and 12 brought a welcome break in the drought and high temperatures that have prevailed for the last six weeks. While the rain was not sufficient to be of much benefit to dry land crops or range, it was of some benefit to irrigated lands and relieved the demands temporarily for heavy and frequent irrigation.

Crops generally on the project are showing some improvement. Sugar beets are making good growth, but alfalfa and grains are still being damaged by grasshoppers. The supply of alfalfa hay on the project is short and the farm price has advanced to $15 a ton.

The annual Huntley Project Farmers' Picnic was held on July 18, with an estimated attendance of 2,000 people. Addresses were made by Governor Elmer Holt and Senator James E. Murray. Other features of the picnic included the usual sports and picnic entertainment program.

Station visitors on July 11 were Dr. C. E. Leighty, Mr. J. M. Stephens, Mr. Leroy Moomaw, Mr. M. A. Bell, and Mr. Joe Sutherland - all of the Division of Dry Land Agriculture.

During the week ending July 25 the maximum temperature was 103 and the minimum 57°. There was 0.03 inch of precipitation.

Drought and hot weather continued during the week with daily maximum temperatures of 100° or higher. Hay and grain crops are short due to heat and grasshopper damage. In many cases, where the grasshopper damage threatened yields, grains were harvested for hay. Other crops, including beets and beans, are making good growth and fair yields are indicated.

Huntley (cont'd)

Station work during this period included irrigating and cultivating row crops. The first cutting of alfalfa yielded a maximum of 3.02 tons per acre and a minimum of 0.86 ton per acre. The average yield was 1.9 tons an acre.

Dan Hansen.

Newlands

During the two-week period ending July 25 the average maximum temperature was 96.9, with a maximum of 100 on July 18, 19, and 20; the average minimum was 57.9, with a minimum of 47° on July 12. The mean temperature was 77.4°. The wind velocity averaged 2.31 miles an hour. There was no precipitation.

Farm prices have improved materially during the latter part of July. Butterfat has advanced to 38 cents a pound, barley to $25 a ton, wheat to $30 a ton, and hay prices are strengthening a little. Grain crops larger than the average will be harvested this year. Several fields of winter-sown wheat will produce almost two tons of grain to the acre. The high price of butterfat and drought conditions elsewhere should cause an increase in the price of hay. Most farmers are holding their crops for better prices.

Some attention is being given to proposed weed control. A few local farmers are practicing cultivation and summer fallowing in an endeavor to control hoary cress. This weed, as well as others, is becoming more prevalent on the project and is rapidly becoming a serious pest. Local irrigation officials are giving encouragement to those desiring to control its spread. Several crews of C.C.C. boys are engaged in eradicating the pest on ditch banks and in other areas not suitable for tillage operations.

Station activities during this period have consisted of the usual summer operations. All of the grain has been cut and most of it threshed. Average yields were obtained. At present the second crop of hay is being harvested. The turkey- and hog-feeding experiments are progressing according to schedule.

The State has completed a 24 by 32-foot shed as a shelter for the cows. A shed has been built over the recently drilled well.

Some progress has been made in the attempt to rid the dairy herd of mastitis. Vaccines have been prepared and are now being injected into all the cows of the milking herd and all the older heifers.

Mr. S. H. Hastings visited the station on July 19 and 20 for the purpose of inspecting the experiments being conducted and making plans for the future operation of the station.

E. W. Knight.

Prosser

During the week ending July 18 the maximum temperature was 97, mean maximum 90, minimum 43, mean minimum 50.6, and the greatest daily range 46°. The mean hourly wind velocity was 1.39 miles. The total evaporation was 1.811 inches.

The wheat plots were harvested and shocked. The potato plots were hoed, irrigated, and cultivated.

U. S. No. 1 potatoes are bringing $35 a ton. The top price of hops, baled, is 32 cents a pound.

Prosser (cont'd)

During the week ending July 25 the maximum temperature was 103, mean maximum 95.3, minimum 45, mean minimum 52.6, and the greatest daily range 47°. The mean hourly wind velocity was 1.22 miles. Total evaporation was 1.860 inches.

The second cutting of alfalfa was harvested during the week. The yields of hay were about the same as those from the first cutting.

Markets: U. S. No. 1 potatoes, $30 a ton; barley and oats, $23.50 a ton; butterfat, 36 cents a pound.

Dean E. C. Johnson, of the College ofAgriculture, State College of Washington, and Mr. S. H. Hastings visited the station during the week.

Carl A. Larson.

Scotts Bluff

During the week ending July 25 the average maximum temperature was 99, with a maximum of 102; the average minimum was 62, with a minimum of 58°. The daily wind movement averaged 5.7 miles an hour. There was 0.32 inch of precipitation.

On July 25 storage water in the Pathfinder and Guernsey reservoirs amounted to 280,700 acre-feet. The inflow into the Pathfinder was 540 second-feet and the outflow was 3,615 second-feet.

Station activities during the week included stacking hay, irrigating alfalfa and corn, cultivating potatoes, and weeding beets.

The temperature has been continuously above normal since June 10. In general only fair stands of potatoes have been obtained throughout the valley. The potato shoots were dehydrated as they emerged through a very hot surface soil, even when the seed pieces were in very moist soil. Some fields are almost a total failure, and farmers are planting them to millet or Sudan grass. On the other hand, there are many fields where the stand is good. Almost all of the good stands were obtained from plantings made previous to June 15, which date is normally considered the best time to plant here.

Mr. A. E. Anderson, State and Federal Crop Statistician, said that another rainless week of high temperatures probably will "see the finish" of Nebraska's 1936 corn crop, both as to production of grain and as to any large amount of forage.

Lionel Harris.

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Vol. XXXVIII August 1 and 8, 1936 No. 16

Belle Fourche

During the week ending August 1 the maximum temperature was 99 and the minimum 57°. The precipitation amounted to 0.14 inch.

During the week threshing of grain from field A, the irrigated rotations, and the maximum production experiment was completed. Due to the excessively high temperatures during June and July and also to the shortage of irrigation water, the yields were the lowest on record. In the irrigated rotations the average yields per acre were as follows: Oats, 22.6 bushels; barley, 13.4 bushels; and wheat, 11.1 bushels.

In July there were 16 days when the temperature was 100° or over with a maximum of 110°. The evaporation was 10.224 inches, and the precipitation 1.09 inches. The precipitation came in light showers and was of very little benefit to the crops.

During the week ending August 8 the maximum temperature was 99 and the minimum 50°. There was 0.13 inch of precipitation.

On August 1 the irrigation water was again turned into the canals after a shut-down of ten days. During the week all crops were irrigated in field A, the rotations, and the maximum production experiments. Enough water is left for two irrigations of the cultivated crops.

Mr. C. S. Scofield and Mr. S. H. Hastings of the Washington office, Mr. Dan Hansen of the Huntley Field Station, Mr. A. C. Hildreth of the Cheyenne Field Station, and Mr. A. L. Ford of the State College at Brookings, South Dakota, visited the station during the week.

Beyer Aune.

Huntley

During the two-week period ending August 8 the maximum temperature was 101 and the minimum 42°. There was 0.10 inch of precipitation.

Lower temperatures in the latter half of this period afforded relief from the hot weather that prevailed during the previous month. Late crops, including sugar beets, are making good growth and should produce near normal yields. Grain crops and the second cutting of alfalfa were light due to excessive heat and insect damage. With less damage occurring now from grasshoppers it is probable that a fair third cutting of alfalfa will be harvested.

The price of alfalfa hay has advanced $3 a ton and is now $18 a ton. Feed grains are bringing $2 to $2.50 a cwt.

The movement of livestock to market or to sections where feed is available is continuing at a high rate. During the week one Billings firm alone shipped about 5,000 cattle.

Huntley

Station work during this period included harvesting small grains and the second crop of alfalfa on the irrigated plots and the irrigation of all late crops.

Station visitors during this period were Messrs. C. S. Scofield, S. H. Hastings, and Beyer Aune, of the Division of Western Irrigation Agriculture; Director F. B. Linfield and Professors H. E. Morris, Edmund Burke, P. J. Slagsvold, and Clyde McKee, of the Montana Agricultural Experiment Station.

Dan Hansen.

Newlands

During the two-week period ending August 8 the average maximum temperature was 94.2, with a maximum of 97; the average minimum was 57.8, with a minimum of 53°. The mean temperature was 76°. The wind velocity averaged 2.29 miles an hour. There was 0.03 inch of precipitation.

The second crop of alfalfa is now being harvested on the project. The price of hay is $7 a ton in the stack. The Grange Company of California has representatives in this area endeavoring to purchase hay, but it is thought that the farmers may be able to get a better price than this company has been offering.

Station field work has consisted of cultivating corn, cutting weeds, irrigating, and harvesting the second crop of alfalfa. Returns are not yet complete on alfalfa yields, but to date they are lower than usual. In 1935 the first crop of alfalfa was about 36 percent of the total for the season, while the second crop was 34 percent of the total. It is probable that this percentage difference will be greater this year.

The State is at present constructing six pens for the feeding of 300 lambs this winter. Livestock investigations at this station in the past have never included sheep.

The dairy herd has again been subjected to Bang's test and has been accredited as free of abortion for another year. The study of mastitis continues to show progress. The second treatment of serum has been given the herd and laboratory tests are continuing for abnormal milk.

E. W. Knight.

Prosser

During the week ending August 1 the maximum temperature was 95, mean maximum 92.3, minimum 46, mean minimum 50.9, and the greatest daily range 44°. The mean hourly wind velocity was 1.23 miles. Total evaporation for the week amounted to 1.993 inches.

The U. S. Bureau of Reclamation has begun an investigation of ground water levels in areas of the Sunnyside division that may be affected by drainage water from the Roza division now under construction. The project engineer of the Sunnyside division is directing the installation of test wells in areas that may be affected between Zillah and Benton City. The installation of wells will be completed sometime in September of this year. Reclamation officials have conferred with L. T. Jessup, Drainage Engineer in the Bureau of Agricultural Engineering, on the ground water question.

Mr. H. K. Dean, Superintendent of the Umatilla Field Station, visited this station July 26, and Mr. S. H. Hastings accompanied him to Hermiston the same day.

Carl A. Larson.

Scotts Bluff

The average maximum temperature during the week ending August 1 was 90, with a maximum of 102; the average minimum was 62, with a minimum of 58°. The daily wind movement averaged 7.3 miles an hour. There was no precipitation.

The combined storage of water in the Pathfinder and Guernsey reservoirs on August 1 was 236,350 acre-feet. The inflow into the Pathfinder was 780 second-feet and the outflow was 3,635 second-feet.

During the week the sugar beets and potatoes were irrigated. Both crops were weeded and cultivated previous to irrigation.

The Psyllid insect which causes "Psyllid Yellows" of potatoes has been found in many fields, particularly of early potatoes. The spraying test being conducted at the station to control this insect is arousing great interest among potato growers. Many growers of late potatoes where the stand justifies are spraying with lime-sulphur, whether the insect is present or not. The station is advising this precaution in view of the favorable price prospects. Cooler weather during the week resulted in the best growth of potatoes since planting time. Other crops have been benefited also. The sugar beet crop at the station is in excellent condition at this time; and if there is water enough for two more irrigations, the yield should be very good. This is generally true of the valley. The bean crop generally is free from bacterial blight, and a good harvest of beans is anticipated.

The yield of alfalfa is above normal this year. Where irrigation water has been adequate, alfalfa has made a rapid and heavy growth. The second crop of alfalfa in field K yielded a maximum of 1.62 tons, a minimum of 0.93 ton, and an average of 1.31 tons per acre.

A Scotts Bluff County crops field day and 4-H club contest will take place August 13 at this field station. There will be no annual picnic at the station this year because all the station lawns have been plowed and reseeded.

During the week ending August 8 the average maximum temperature was 81, with a maximum of 98; the average minimum was 58, with a minimum of 54°. The daily wind movement averaged 5.2 miles an hour. There was 0.46 inch of precipitation.

Mr. John D. Quinn, State Engineer, said that due to recent heavy rains there has been an appreciable increase in the inflow at Pathfinder Dam, the inflow now being almost as much as the outflow. The combined water storage at the Pathfinder and Guernsey Reservoirs on August 8 was 218,160 acre-feet. The inflow into the Pathfinder was 1,286 second-feet and the outflow was 3,006 second-feet.

Station activities have included irrigating potatoes and sugar beets in field E and the certified potato plantings on the Walker place. The beans in rotation 121 and the corn and beets in field K were hoed. The potatoes in field K were sprayed. The lawn around the office has been reseeded, and the lawns on each side are being prepared for reseeding. Other activities consisted of hauling hay and manure and cutting weeds.

Dr. H. M. Tysdal, of the Division of Forage Crops and Diseases, visited the station on August 6 and 7.

Butterfat is selling for 40 cents a pound. Dairy feed is very high.

Lionel Harris.

Yuma

During the two-week period ending August 8 the maximum temperature was 109, mean maximum 103.2, minimum 74, and the mean minimum 78.8. The precipitation was 0.18 inch, making a total for the year of 1.02 inches. The precipitation has been in the form of local showers, so that the weather reports from this section vary widely. The Weather Bureau station at Yuma, Arizona (8 miles from here) reports only 0.74 inch so far this year. The humidity has been very high.

The harvest of alfalfa seed on the project is in full swing. This year the crop has been estimated at three million pounds. Some have received 14 cents a pound for seed from the thresher and 15 cents a pound for recleaned seed. Alfalfa straw baled has been selling for $6 a ton.

The sugar beet seed experiment at the station was carried on last winter with one B.P.I. variety, as the commercial stock failed to produce seed during the very mild winters. A poor stand was obtained as the beets were planted early in December to escape grasshopper injury. One square rod was harvested where the stand was approximately 75 percent and a yield of 1,940 pounds an acre was obtained.

Considerable interest has been manifested in the Imperial Valley in the growing of sugar beets for sugar. Arrangements have been made for approximately 20 plots of from 3 to 5 acres in extent. These test plots will have three major features for experiment: (1) Fertilized vs. unfertilized planting; (2) various dates of planting, spaced at two weekly intervals from September 15 to December 1; and (3) various spacings of beets in rows. The Holly Sugar Corporation and Las Alamitos Sugar Corporation, both of Santa Ana, California, are instrumental in this work and will furnish the seed.

Picking the Stoneville variety of cotton has been started by some growers. There may be some advantages in an early variety this year as the cotton is shedding considerably. Many bolls three-fourths of an inch in diameter have been found on the ground. The high humidity combined with high minimum temperatures may be the reason for this.

Station work included irrigating, cutting weeds, thinning and cultivating milo, cleaning up grounds and roadway, and threshing alfalfa seed.

Max E. Crannell.

M I S C E L L A N E O U S

"The Choice of Crops for Saline Land", by T. H. Kearney and C. S. Scofield, has been issued as Circular No. 404 of the U. S. Department of Agriculture. This circular is a revision of and supersedes Farmers' Bulletin No. 446, "The Choice of Crops for Alkali Lands."

Mr. S. H. Hastings returned to Washington on August 7 from a western field trip.

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Vol. XXXVIII August 15 and 22, 1936 No. 17

Belle Fourche

During the week ending August 22 the maximum temperature was 96 and the minimum 53°. There was 0.58 inch of precipitation.

During the week the potatoes, beets, and corn were hoed in field A and in the maximum production experiment. Plowing the grain plots was started. Alfalfa, beets, and potatoes were irrigated. This will probably be the last irrigation this season due to the shortage of irrigation water.

The ninth annual beet tour was held on August 20. It was attended by 150 people. At the close of the tour the Sugar Company served dinner here at the station, and a program was given in the afternoon. Much interest was shown in the rotations, particularly those including sugar beets where pasturing is practiced and farm manure is applied.

During the last week there have been frequent showers, and the temperatures have been moderate. Much improvement is shown in the growing condition of all crops.

Beyer Aune.

Huntley

During the two-week period ending August 22 the maximum temperature was 101 and the minimum 47°. There was 0.40 inch of precipitation.

Favorable conditions prevailed during this period and late crops are making good growth. It is estimated that sugar beets will yield more than 12 tons per acre on a total of about 22,000 acres in the district. This is about 5,000 acres less than the original contracted area, the loss occurring early in the season from insect and drought damage.

With lessened damage from grasshoppers it appears now that there will be a normal yield of the third crop of alfalfa. The farm price of alfalfa hay remains at $12 to $14 a ton and feed grains at about $2 a cwt.

Station work has included irrigating, threshing oats on the rotation plots, and harvesting silage corn. Professors Edmund Burke and H. E. Morris, of the Montana Agricultural Experiment Station, were visitors here on August 17 and collected samples of crops from certain rotation plots in connection with a study of fertility and production problems in the rotations.

The comparatively low yields of the second crop of alfalfa were due mainly to grasshopper damage. The maximum yield was 2.18 tons per acre from rotation 61, while the minimum yield was 0.08 ton per acre from rotation 69.

Dan Hansen.

Newlands

During the two-week period ending August 22 the average maximum temperature was 90.5, with a maximum of 97 on August 15; the average minimum was 54.2, with a minimum of 45° on August 18 and 22. The mean temperature was 72.4°. The wind velocity averaged 2.82 miles an hour. There was no precipitation.

The yields of the second crop of alfalfa on the project appear to be higher than usual. Farmers who are expecting to have surplus hay refuse to contract to sell it in advance.

The number of feeder cattle are increasing, principally due to purchases from drought areas in the Middle West. Range conditions throughout Nevada are very good, and it is expected that more feeders from the drought regions will be grazing on Nevada pastures.

The State is having sheep pens and mangers constructed for use in the proposed sheep-feeding experiments to start about October 1. The Division of Range Management is contemplating purchasing 300 lambs of the white-faced type. Efforts have been made to purchase third crop alfalfa hay for these feeding experiments because it is usually of better quality than the first and second crops.

Additional serum has been administered to cows having mastitis, and veterinarians believe that the results are very encouraging.

Work at the station has consisted of weeding ditches and roadways, plowing and cultivating, and trimming hedges. Two irrigations have been given recently.

The yields of second crop hay on the station were slightly less than in 1935. The yields of the first and second crops averaged a little more than 2½ tons to the acre.

E. W. Knight.

Prosser

During the week ending August 15 the maximum temperature was 93, mean maximum 89.8, minimum 50, mean minimum 53, and the greatest daily range 41°. The mean hourly wind velocity was 1.17 miles. Total evaporation amounted to 1.748 inches.

A Field Day was held at the Wenatchee Field Station August 13. Field trips were made to plots treated with commercial fertilizer. Cover crop experimental plots on old orchard soils were of particular interest to the visiting farmers.

Market prices: Alfalfa hay, $8 a ton in the stack; soft white wheat, 85 cents a bushel; barley, $29 a ton; oats, $28 a ton; hops, baled, 17 to 32 cents a pound; large white eggs, 20 to 24 cents a dozen; butterfat, 37 cents a pound.

During the week ending August 22 the maximum temperature was 93, mean maximum 87.7, minimum 46, and the mean minimum 50.3.°

In the crop rotation plots the potatoes and corn were irrigated. The station oat crop was threshed during the week by a contract thresher. The yield was approximately 65 bushels to the acre.

The Utah-Idaho Sugar Company has started the construction of a sugar beet factory at Toppenish in the Wapato district of the Yakima Valley. The new building will be much larger than the old one now on the site, and the new plant will have a capacity of 1,500 tons daily. It will be in operation for next year's crop of sugar beets.

Carl A. Larson.

Scotts Bluff

During the week ending August 15 the average maximum temperature was 97, with a maximum of 100 on the 11th; the average minimum was 61, with a minimum of 55° on the 14th. The daily wind movement averaged 4.8 miles an hour. There was 0.02 inch of precipitation.

During the week sugar beets have been irrigated and also the early potatoes that were planted for a spraying test to control Psyllid Yellows. All the grain at the station was threshed on August 13. In general the yields are light.

Instead of the annual field station picnic this summer, a field day was conducted during the afternoon of August 13 in conjunction with 4-H club judging and demonstration contests. The field day proved highly successful. The number of men inspecting experimental work in the field was the largest that has ever followed such a tour in the last six years.

The combined storage of water in the Pathfinder and Guernsey reservoirs on August 15 was 177,820 acre-feet. The inflow into the Pathfinder was 548 second-feet and the outflow was 3,656 second-feet.

During the week ending August 22 the average maximum temperature was 92, with a maximum of 98 on the 18th; the average minimum was 57, with a minimum of 47 on the 22d. The daily wind movement averaged 4.8 miles an hour. There was no precipitation.

Station activities included irrigating potatoes and cutting the third crop of alfalfa hay.

A conference of potato experts from Colorado, Wyoming, and Nebraska was held at the station on August 18. In the morning a tour was made of all experimental work involving potatoes. An informal discussion of potato problems, including progress reports from the various scientific workers, featured the activities during the afternoon. A tentative outline for a permanent organization was drawn up. Carl Metzger, of the Colorado Agricultural College, was elected chairman for the meeting next year, which will be held in Colorado. The organization has been named "The Association of High Plains Potato Workers."

On August 20 there was a potato tour of the Valley. After visiting several farms, the tour arrived at the station where the results of experimental work with potatoes were shown and described. After lunch a meeting was held. Marketing, cultural, and disease problems were the subjects of discussion. Dean Burr accompanied the tour as guest speaker. A large crowd attended.

The combined storage of water in the Pathfinder and Guernsey reservoirs on August 22 was 125,020 acre-feet. Water for irrigation will be available until September 5, according to present plans.

The business of Farmers' Dairy Cooperatives in Nebraska increased nearly 25 percent during the 1935-36 marketing season as compared with the 1934-35 season, according to figures released by the Cooperative Division of the Farm Credit Administration. The first carload of honey this season was shipped from the North Platte Valley this week.

Yields of grain from plots in fields K and E and the oat variety test have been tabulated.

Scotts Bluff (cont'd)

Summary of Yields of Grain

Crop	Bushels per Acre Maximum	Minimum	Average
		Field K	
Oats	59.3	18.5	38.6
Wheat	18.7	5.7	10.5
		Field E	
Oats	37.9	21.1	25.5

Summary of Oat Variety Test Yields

Variety	Bushels per acre
Nebraska 21	40.6
Victory	33.5
Kanota	27.6
Swedish Select	24.0
Igold	23.6
Burt 293	22.8
Average	28.7

Lionel Harris.

Yuma

During the two-week period ending August 22 the maximum temperature was 113, mean maximum 105.4, minimum 65, and the mean minimum 75.7°. There was 0.05 inch of precipitation.

Cotton picking in the Yuma district is well under way. A total of 680 bales of cotton have been ginned this season. Picking prices have increased from 80 cents to 90 cents a hundred owing to a shortage of pickers. Due to the demand of the All-American Canal for laborers, cotton pickers will probably be hard to get this fall.

A feed mill, costing $10,000 and an ensilage pit to cost $5,000 exclusive of the land value, is being erected by the California Land and Cattle Company one mile south of Somerton in preparation for extensive cattle feeding operations this fall and winter. This mill will be equipped to grind four tons of alfalfa hay or straw an hour, and there will be a grain grinder to handle all classes of grain. The company plans to put up 3,000 to 5,000 tons of ensilage a year. The feed lot will be large enough to handle 2,000 cattle at one time.

Mr. Dean Bloodgood, of the Bureau of Agricultural Engineering, and Mr. Summerville, of Queensland, Australia, were visitors at the station on August 20 and 21. Mr. Summerville is in the United States to study methods of agricultural research, especially in date culture.

Station work during this period consisted of cutting weeds in alfalfa and cotton, roguing cotton, trapping gophers, irrigating, and making open boll counts in regional cotton variety test.

Max E. Crannell.

WEEKLY REPORTS

Of The Division Of
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(Not for publication without the prior consent of this Division.)

Vol. XXXVIII August 29 and September 5, 1936 No. 18

Prosser

During the week ending August 29 the maximum temperature was 91, mean maximum 64.2, minimum 45, mean minimum 48.3, and the greatest daily range 40°. The mean hourly wind velocity was 1.69 miles. The total evaporation amounted to 1.550 inches.

Field work consisted mainly of routine irrigation of the rotation plots. The second-year sweetclover plots in the 40 rotations were disked and plowed.

The Utah-Idaho Sugar Company held sugar beet tours in the Wapato and Sunnyside districts during the week. The farmers are showing considerable interest in the contract offered by the company for next year's crop. The company is placing considerable emphasis on the feeding value of the by-products from the factory which will be available to the farmers next year.

The hay crop on the station has been sold to feeders who will do the feeding on the station grounds. Sixty tons of hay were sold for $10 a ton in the stack and will be fed by station labor. The remainder of the hay was sold at $9 a ton in the stack.

A sugar beet seed production experiment has been planted and a good stand has been obtained. The Amalgamated Sugar Company and the station are cooperating in this experiment.

During the week ending September 5 the maximum temperature was 87, mean maximum 79, minimum 44, and the mean minimum 51°. The precipitation amounted to 0.08 inch.

The sweetclover rotation in field E-5 is being pastured with yearling ewes, five on each plot.

The picking of hops in the valley was started during the week. In some sections the hop crop was damaged by heavy showers, which caused the vines to fall.

Markets: Hay, $10 a ton in the stack; No. 1 potatoes, $32 a ton, sacks furnished.

Carl A. Larson.

Scotts Bluff

During the week ending August 29 the average maximum temperature was 89, with a maximum of 98; the average minimum was 52, with a minimum of 43°. The daily wind movement averaged 6.0 miles an hour. There was 0.14 inch of precipitation.

The combined storage of water in the Pathfinder and Guernsey reser-

Scotts Bluff (cont'd)

voirs on August 27 was 90,780 acre-feet. The inflow into the Pathfinder was 240 second-feet and the outflow was 4,047 second-feet.

Station activities included stacking the third cutting of alfalfa hay and irrigating sugar beets. The irrigation water must be scrupulously tended both night and day, making the labor of irrigating almost double that of ordinary years when water is more abundant. The third crop of alfalfa matured two weeks earlier than last year. Four cuttings may be obtained where water is available.

Mr. Paul Swanson arrived August 29 to assume his duties as livestock specialist at the station. Mr. Swanson is a graduate of the University of Nebraska and has an M.A. degree from the University of Tennessee.

The average precipitation from 1910 to 1935 during the month of August has been 1.64 inches; the precipitation for August 1936 was only 0.62 inch.

During the week ending September 5 the average maximum temperature was 86, with a maximum of 94; the average minimum was 55, with a minimum of 48°. The daily wind movement averaged 7.6 miles an hour. There was 0.06 inch of precipitation.

Station activities consisted of stacking hay, weeding, and irrigating potatoes and sugar beets.

Dr. G. H. Coons, of the Division of Sugar Plant Investigations, visited the station during the week.

The combined storage of water in the Pathfinder and Guernsey reservoirs on September 5 amounted to 48,440 acre-feet. The inflow into the Pathfinder was 180 second-feet and the outflow was 2,015 second-feet.

Lamb feeders and sheep breeders from the North Platte Valley of western Nebraska and eastern Wyoming met in Scottsbluff on September 3 to discuss the feeding operations of last season and the problems of the coming season.

Mr. A. E. Anderson, State and Federal Crop Statistician, said that statistics on Nebraska dairy production in 1935 showed slumps in creamery butter and cheese production in the State, but a slight increase in ice cream output.

The third crop of alfalfa yielded an average of 1.76 tons to the acre.

Summary of Yields of Alfalfa in 1936

	Tons per acre			
	First cutting	Second cutting	Third cutting	Total
Maximum	2.77	1.62	2.19	---
Minimum	1.08	.93	1.24	---
Average	1.76	1.26	1.76	4.78

Lionel Harris.

Umatilla

Under date of August 28 Mr. H. K. Dean reported as follows:

"By irrigating the third crop of alfalfa just once, sufficient water will be available for row and pasture crops.

"Growing conditions have been favorable, and it now appears that all crops will mature before frost.

"Work on the station has included weeding, irrigating, and harvesting the third crop of hay.

"Dr. S. T. Doolittle and Mr. B. F. Dana on a recent visit to this station spent a good deal of time going over the curly-top experiments. Dr. Doolittle is of the opinion that the problem of controlling curly-top in the shelters is sufficiently difficult and important to justify the installation of some instruments next year to obtain preliminary information. On his return from a trip to Washington, Idaho, and Utah Dr. Doolittle spent several days here at the station taking notes and harvesting the beans already matured.

"The annual tour of the Eastern Oregon Turkey Growers' Association visited the station on August 15. The results of the turkey experiments that were conducted at this station last year were explained to the 75 people present."

M I S C E L L A N E O U S

"The Effect of Irrigated Crop Rotations Upon Potato Scab", by R. W. Goss, has been published as Paper No. 174, Journal Series, of the Nebraska Agricultural Experiment Station. The data presented in this paper were obtained from the rotation experiments conducted at the Scotts Bluff Field Station.

Mr. C. S. Scofield returned to Washington August 28 after an absence of one month on a western field trip.

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Vol. XXXVIII September 12 and 19, 1936 No. 19

Newlands

During the three-week period ending September 12 the average maximum temperature was 84.4, with a maximum of 92; the average minimum was 46.2, with a minimum of 37°. The mean temperature was 65.3°. The wind velocity averaged 2.52 miles an hour. There was 0.06 inch of precipitation.

The temperatures during this period have been normal, with minimum readings approaching frost during the last three days. The average date of the first killing frost in the fall is September 23.

Market prices: Hay, $8 a ton in the stack; butterfat, 38 cents a pound; eggs, 29 cents a dozen; beef 7 cents, lambs 8 cents, and hogs 10½ cents a pound.

Station activities have included cutting hay, eradicating weeds, plowing, and hauling manure. The new series of plots have been mowed, and the bare spots were reseeded. Plots Y-11 to 18, inclusive, with the exception of plot Y-14, have been seeded to sweetclover. Some thin stands of alfalfa have been reseeded. Some 14 or 15 acres of land has been plowed and is being prepared for fall grain.

Having completed the sheep pens, the State has placed an order for 300 lambs to be fed this fall.

The hog-feeding experiment will be completed in about ten days and 35 pigs will be ready for market.

Some mastitis is still present in the dairy herd, but the treatments are being continued and the indications are that the disease is not so severe as it was.

Station visitors during this period were Mr. P. H. Davis, of Sleepy Hollow Dairy Farms of California; Mr. Arnold, of Powell, Wyoming, who is interested in bean culture; and Dr. Salmon, of the Bureau of Plant Industry.

E. W. Knight.

Prosser

During the week ending September 12 the maximum temperature was 89, mean maximum 82.7, minimum 38, mean minimum 44.1, and the greatest daily range 45°. The mean hourly wind velocity was 1.21 miles. The total evaporation amounted to 1.25 inches.

Work on the rotations included applying the final irrigation to sugar beet and potato plots, weeding alleys and roadways. The wheat stubble plots were disked.

The third crop of alfalfa hay is being harvested in the valley. Some farmers are digging late potatoes.

The harvest of Jonathan apples at the station was completed at the

Prosser (cont'd)

end of the week. The yield was 385 loose boxes per acre, which is about two thirds of last year's yield. First shipments of Extra Fancy Jonathans sold for $1.75 per packed box; however, the price was down to $1.50 per box at the end of the week.

Market prices: Top price for late potatoes, $32 a ton, sacks furnished; top price for good hops, 40 cents a pound, baled, f.o.b. car; prime steers $6.50, choice hogs $10.75, and lambs $7.50 a hundred pounds.

Visitors at the station during the week were: Dan Hansen and Beyer Aune, Superintendents of the Huntley and Belle Fourche Field Stations, respectively; F. D. Richey, Chief of the Bureau of Plant Industry; Dr. E. C. Auchter, Principal Horticulturist, Bureau of Plant Industry; David E. Stephens, Superintendent of the Moro (Oregon) Station; Dr. S. C. Vandecaveye, Professor of Soils, and Mr. Keaton, graduate student in soils, Washington State College, Pullman, Washington.

During the week ending September 19 the maximum temperature was 83, mean maximum 69.8, minimum 30, mean minimum 35.4, and the greatest daily range 39°. The mean hourly wind velocity was 1.32 miles. Precipitation amounted to 0.02 inch. The total evaporation was 1.395 inches. The first frost of the season occurred September 15. The frost-free period this year was 160 days.

The alfalfa hay plots in the rotations were harvested. The average yield of field-dry hay from new seedings of alfalfa was 1.38 tons per acre and from old alfalfa plots 2.25 tons per acre. The stand count on sugar beet and corn plots was started.

Picking of Delicious apples began during the week. In Yakima spot sales have been made at $1.50 a box for Extra Fancy Delicious and $1.25 a box for Fancy Delicious.

Shipments of produce from the valley have been much heavier this year than last season. During the week ending September 17 1089 carloads were shipped as compared to 733 carloads shipped last year during the same period.

The Washington State Fair was held at Yakima during the week. The agricultural exhibits were outstanding, and a great deal of interest was shown by visitors.

Visitors at the station during the week were: Dr. M. T. Jenkins, in charge of corn work, Bureau of Plant Industry; David E. Stephens, Superintendent of the Moro (Oregon) Station; M. C. Lane and K. E. Gibson, of the Entomology Laboratory at Walla Walla, Washington.

Carl A. Larson.

Scotts Bluff

During the week ending September 12 the average maximum temperature was 85, with a maximum of 92; the average minimum was 50, with a minimum of 44°. The daily wind movement averaged 6.0 miles an hour. There was no precipitation.

Most of the grain plots in field K have been plowed and disked in preparation for leveling, which will be started soon to facilitate irrigation.

Water in the Government canal was shut off at the headgates September 7. The flow in the lateral serving the station was held up until September 10 when the last water was run here. Sugar beets and potatoes

Scotts Bluff (cont'd)

received the last irrigation between the 1st and 10th of September. A small acreage of alfalfa was also irrigated during this period.

Winter rye has been seeded in rotation 27 and winter wheat in rotation 5. Both plots were irrigated after seeding. Corn has been cut on the plots in field K and also on the large fields planted for silage.

It is estimated by Mr. D. J. Roach, Nebraska district manager of the Great Western Sugar Company, that sugar beet growers this fall will harvest 55,752 acres out of 60,016 acres that were planted in western Nebraska. He says that the crop will be 90 percent of normal.

During the week ending September 19 the average maximum temperature was 80, with a maximum of 89 on the 14th; the average minimum was 44, with a minimum of 34° on the 18th. The daily wind movement averaged 7.0 miles an hour. There was 0.07 inch of precipitation.

Recent station activities have included cutting silage, planting lawn, and remodeling a chicken house for use in housing seven or eight dairy cows afflicted with mastitis. The cows are being sent here from the Valentine station and from the University of Nebraska.

On September 16 a tour of sugar beet fields was made in the valley. The tour began with a thorough inspection of the work at this station and proceeded from here through various districts of the Great Western Sugar Company, then to the Holly Sugar Company territory in the vicinity of Torrington, Wyoming. Sugar company officials from Nebraska, Wyoming, and South Dakota, and prominent sugar beet growers from the North Platte Valley joined in the tour.

The Holly Sugar Company factory located at Torrington, Wyoming, will process sugar beets from approximately 19,000 acres this fall. The six Great Western factories in western Nebraska will handle about 55,000 acres of beets.

The price of dry pulp has been set at $19 a ton. Wet pulp will range from 50 cents to $1.40 a ton, depending on the time purchased. At these prices pulp is a cheaper feed than grain and consequently is in great demand.

The 46th annual Scotts Bluff County Fair was held September 16-19, inclusive. In past years the fair occupied only three days. This year approximately 40,000 persons attended. Agricultural exhibits were excellent and particularly noteworthy were the exhibits of the boys and girls in the 4-H clubs.

Mr. Beyer Aune and Mr. Dan Hansen visited the station September 13 and 14.

Lionel Harris.

Umatilla

During the week ending September 5* the mean maximum temperature was 80, mean minimum 58, and the mean 69°. The wind velocity was 2.74 miles an hour. The daily evaporation was 0.173 inch. There was 0.12 inch of precipitation.

The third crop of hay was harvested from the alfalfa varieties. The cover crop of rye and winter vetch and rye and winter peas in the fruit orchard was disked into the soil.

*This report was not received in time to include it in the previous issue.

Umatilla (cont'd)

H. P. Singleton and C. A. Larson, of the Prosser (Washington) Station, visited this station and vicinity on September 5. They collected soil samples from fields in which strawberry clover was found. These samples are to be tested for salinity. Mr. F. D. Richey and Dr. E. C. Auchter were visitors during the afternoon of September 3.

During the week ending September 12 the mean maximum temperature was 82, mean minimum 48, and the mean 65°. The wind velocity was 3.86 miles an hour. The daily evaporation amounted to 0.252 inch. There was a trace of precipitation.

The harvest of the third crop of hay on the station has been completed.

The average weights of the turkeys when they were 20 weeks old on September 11 follow:

	Rations	Weight, pounds
Lot 1 - Toms	24% protein	16.0
Lot 2 - Hens	24% "	10.9
Lot 3 - Toms	21% "	15.3
Lot 4 - Hens	21% "	10.8
Lot 5 - Toms	Scratch and milk	15.0
Lot 6 - Hens	" " "	11.1
Lot 7 - Toms	18% protein	13.9
Lot 8 - Hens	18% "	10.6

Messrs. Dan Hansen and Beyer Aune visited the station and project on September 8.

During the week ending September 19 the mean maximum temperature was 74, mean minimum 41, and the mean 57°. The wind velocity was 2.80 miles an hour. The daily evaporation amounted to 0.173 inch. No precipitation was recorded.

A minimum temperature of 32° on September 16 did not injure crops on the station, although somewhat cooler temperatures on the lower portions of the project killed the tender crops, such as beans, squash, and tomatoes.

Mr. B. F. Dana completed his curly-top notes for the year and harvested single-plant selections of beans. The tomatoes protected by cloth and by lath cages continued to resist curly-top throughout the season and produced normal, but slightly late, crops.

Mr. C. Burnham, of the Soil Conservation Service, spent the week in the vicinity of the station surveying soil blowing conditions preliminary to investigating control methods.

H. K. Dean.

MISCELLANEOUS

A manuscript entitled "Irrigated Crop Rotations at the Huntley (Mont.) Field Station, 1912-1935", by Stephen H. Hastings and Dan Hansen, has been submitted with a view to publication as a technical bulletin of the Department.

Mr. S. H. Hastings will leave Washington on October 2 for a southwestern field trip. He expects to return early in November.

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Vol. XXXVIII September 26 and October 3, 1936 No. 20

Huntley

During the two-week period ending September 26 the maximum temperature was 92 and the minimum 26°. There was 1.01 inch of precipitation.

The first killing frost of the season occurred on September 15 when the minimum temperature was 26°. All tender garden crops as well as potatoes were affected. The rainfall of 1.01 inches during this period was of some benefit to fall pastures and to fall plowing.

Sugar beets have made good growth during the latter part of the season, and it is estimated that the average yield for the valley will be about 12 tons per acre. A normal yield of alfalfa was obtained in the third cutting, which was comparatively better than the first two cuttings that were damaged by grasshoppers. Alfalfa hay is selling at $12 to $14 a ton in the stack.

The crop of beans on the project is fairly good and Great Northerns are selling at $4.25 a cwt., while garden seed beans, grown under contract, are bringing $3.75 a cwt.

On September 24 about 80 sugar beet farmers from various sections of the valley visited the station. While these farmers were being shown the rotation experiments, the results of the experiments were explained to them.

Station work has included harvesting the third cutting of alfalfa, threshing late grains and beans, and plowing grain stubble land.

Average Yields of Crops in the Irrigated Rotations

Crop	Bushels per acre
Beans	40.0
Flax	10.4
Oats	48.3*

*Yields low due to grasshopper damage.

Dan Hansen.

Newlands

During the two-week period ending September 26 the average maximum temperature was 80.2, with a maximum of 89; the average minimum was 37.4, with a minimum of 32°. The mean temperature was 58.9°. The wind velocity averaged 1.82 miles an hour. There was no precipitation.

Increased activity in local trade is attributed to the higher prices the local farmers are receiving for their products.

Station work has consisted of haying and harvesting silo corn. The silo has been filled. Most of the third crop of hay has been chopped and

Newlands (cont'd)

put in the barn.

Three hundred lambs were received from eastern Nevada for feeding experiments to be conducted by the Nevada Agricultural Experiment Station. Mr. C. E. Fleming, of the State Station, came here and made arrangements for the care of the lambs.

At the station 32 pigs, used in a test in which they were fed barley, alfalfa meal, and skim-milk, were sold for the State at a price of 10½ cents a pound.

The dairy herd is still receiving treatments for mastitis, and it appears that the vaccine injections are having some effect on the garget cases.

The turkeys in the feeding experiments are now about half grown. Some groups are making good gains, but others are not increasing in weight as they should.

E. W. Knight.

Prosser

During the week ending September 26 the maximum temperature was 92, mean maximum 83.3, minimum 41, mean minimum 46.6, and the greatest daily range 42°. The mean hourly wind velocity averaged 2.04 miles. The total evaporation amounted to 1.246 inches.

The alfalfa and sweetclover plots in the rotations were irrigated and the plot boundaries were trimmed. Fall pasturing of sweetclover on field E-5 was completed September 25. The five yearling ewes made a small gain in weight.

The picking of Delicious apples was completed at the station during the week and the harvesting of Red Rome Beauties was started.

A small sorghum mill began operations near Grandview, Washington, this year. There is available this season 50 acres of cane, which is processed by the mill for one half of the syrup. The yield of syrup so far indicates there will be 8,000 gallons from the 50 acres. Syrup is selling for $1.35 a gallon.

The ground-water test wells to determine ground-water elevations from Zillah to Benton City have been installed by the Bureau of Reclamation. Readings of the water elevations will be presented to the Roza District officials. The Reclamation Bureau officials will not attempt to interpret these data before presenting them to the Roza District.

Market prices: U. S. No. 1 potatoes in sacks, f.o.b. car, $22 a ton; No. 1 hay, $9 to $10 a ton in the stack; soft white wheat, 85 cents a bushel; barley and oats, $27 a ton; hops, 50 cents a pound; eggs, 26 cents a dozen; and butterfat, 35 cents a pound.

During the week ending October 3 the maximum temperature was 85, mean maximum 79.3, minimum 39, mean minimum 40.7, and the greatest daily range 41°. The mean hourly wind velocity was 0.8 mile. The total evaporation for the week was 1.012 inches.

Work on the rotations included fall irrigation and weeding of alleys between alfalfa plots.

Winesap apples are being harvested.

Dr. E. L. Overholser, Professor Burk, and Mr. Keyes, of the State College at Pullman, Washington, visited the station during the week.

Carl A. Larson.

Scotts Bluff

During the week ending September 26 the average maximum temperature was 84, with a maximum of 91; the average minimum was 42, with a minimum of 35°. The daily wind movement averaged 6.0 miles an hour. There was 0.13 inch of precipitation.

Contour maps have been made of the grain plots in field K in order to locate irregularities when leveling the ground. Other station activities included cleaning and fumigating the potato cellar, plowing in irrigation run-off ditches where they cross roads, and painting the barn which will house the dairy cows afflicted with mastitis.

Messrs. John M. Stephens and L. Moomaw were station visitors on September 24.

Mr. A. E. Anderson, State and Federal Crop Statistician, estimated that wages for farm labor in Nebraska were 35 percent higher on July 1, 1936 than on July 1, 1935.

Mr. J. D. Quinn, State Engineer, reports that storage water in the Pathfinder Dam is diminishing rapidly because of continued dry weather in the North Platte Valley. At present 7,840 acre-feet of water is backed up behind the dam. The inflow into the reservoir is 227 second-feet and the outflow 248 second-feet.

During the week ending October 3 the average maximum temperature was 60, with a maximum of 70; the average minimum was 34, with a minimum of 27°. The daily wind movement averaged 6.3 miles an hour. There was no precipitation. The average precipitation for September during the last 26 years was 1.61 inches. This year the September precipitation amounted to 0.26 inch.

The first frost of the season occurred on September 27 when the minimum temperature was 27°. The last frost in the spring was on May 11. Thus there was a frost-free period this year of 139 days as compared with an average of 133 days.

The harvest of late potatoes is in progress throughout the valley. Yields of 400 to 500 bushels per acre have been reported, but generally the yield ranges from 200 to 300 bushels. The quality is very good.

Potatoes have been dug at the station in fields K and E and in part of the certified seed block on the Walker place. Yields are fair.

The fourth crop of alfalfa was 12 inches high and just starting to bloom when the frost occurred. It was not damaged, however, and since that time has been cut.

Five dairy cows have been received from the University.

A 23-acre field of beans in the Scotts Bluff District brought about $2500 on the market this week.

Approximately 50,000 turkeys, one third more than in 1935, will be shipped to eastern markets this year by the North Platte Valley Cooperative Poultry Marketing Association.

Lionel Harris.

Umatilla

During the week ending September 26 the mean maximum temperature was 83.7, mean minimum 47, and the mean 65.3°. The wind velocity was 2.9 miles an hour. The daily evaporation amounted to 0.216 inch. No precipitation was recorded.

Umatilla (cont'd)

Notes on yields of grain sorghums were taken during the week, and the crop was harvested. Some time was spent clearing up the land which was occupied by the curly-top experiment and seeding it to a rye cover crop.

Mr. F. E. Price, in charge of the Department of Agricultural Engineering, Oregon Agricultural College, visited the station.

H. K. Dean.

Yuma

During the week ending October 3 the maximum temperature was 94, mean maximum 91.3, minimum 48, and the mean minimum 55.6°. No precipitation was recorded.

The mean temperature for the month of September was 1.3° above normal. Twenty-eight days were clear and two were partly cloudy.

During the week 640 bales of cotton were ginned on the project, making a total to date of 4,914 bales as compared with 6,026 bales at this time last year and 5,525 bales in 1934.

Transient families from Oklahoma and Texas have arrived in sufficient number to help relieve the local shortage of cotton pickers. Most of these transients are en route to the San Joaquin Valley in California.

Reports of the U. S. Geological Survey show that the discharge of the Colorado River at Grand Canyon for September was 625,000 acre-feet; during the same month last year it was 438,000 acre-feet. The discharge at Topoc, below Boulder Dam, was 540,000 acre-feet. The estimated storage in Lake Mead on October 1,1936, was 9,565,000 acre-feet.

Station activities during the week included disking and leveling fallow plots, cleaning and repairing cotton gin, renovating and reseeding alfalfa plots on the rotations, planting fall garden, irrigating and hoeing.

Messrs. R. E. Beckett and Plum, of the Cotton Division at Sacaton, Arizona, were station visitors October 3. Dr. T. H. Kearney and R. B. Peebles (Egyptian Cotton Breeding) reviewed the station cotton plantings on October 2.

E. G. Noble.

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Vol. XXXVIII October 10 and 17, 1936 No. 21

Huntley

During the two-week period ending October 10 the maximum temperature was 87 and the minimum 25°. There was a trace of precipitation (rain).

Weather conditions were favorable for field work during this period, and good progress was made in harvesting beets and other late crops. Beet harvest on the project was started September 29. The average yield from the district is estimated to be slightly more than 12 tons per acre. The harvest of beans is completed, and the price of Great Northerns is $4.25 to $4.50 a cwt., depending on the grade.

Station work has included harvesting beets, potatoes, and the third crop of alfalfa, and plowing stubble land. An average yield of 597¼ pounds of beans (grain) per plot was produced on the station this year.

Station visitors were Messrs. J. M. Stephens and J. T. Sarvis, of the Northern Great Plains Station at Mandan, North Dakota; Director F. B. Linfield, Prof. H. E. Morris, and Mitrofan Afanasiev, of the Montana Agricultural Experiment Station. Professor Morris and Mr. Afanasiev spent several days at the station harvesting beans and potatoes in the cooperative experiments and making a disease survey of all the beet and potato plots in the irrigated rotations.

Summary of Alfalfa Yields - 1936

	Yields, tons per acre		
	Maximum	Minimum	Average
First cutting	3.02	0.86	1.91
Second cutting	2.18	.08	1.04
Third cutting	1.94	.22	.96

During the week ending October 17 the maximum temperature was 82 and the minimum 33°. There was 0.05 inch of precipitation in the form of rain.

Weather conditions have continued favorable for outside work, and the harvest of sugar beets in this area is reported to be about 75 percent completed.

The final payment of 92 cents a ton for the 1935 beet crop has recently been announced by the Great Western Sugar Company. This payment, together with benefits under the A. A. A., brings the total for last year's crop to $7.85 a ton.

Station work has included harvesting beets in the rotation plots, hauling manure, and plowing plots in the rotations.

Dan Hansen.

Newlands

During the two-week period ending October 10 the average maximum temperature was 76.5, with a maximum of 84; the average minimum was 35.4, with a minimum of 29°. The mean temperature was 56°. The wind velocity averaged 1.35 miles an hour. There was no precipitation.

Market prices: Alfalfa hay, $8.50 a ton in the stack; butterfat, 36 cents a pound; eggs, 35 cents a dozen; beef 7 cents, hogs 9½ cents, and lambs 7½ cents a pound.

Work at the station has included harvesting the third crop of hay, chopping weeds, preparing land for fall planting, and seeding some grain. Plots C-32, 33, and 34 were seeded to wheat and plots C-36, 37, and 38 to winter rye. Plots C-10 to 17, inclusive, have been prepared for winter wheat, and plots C-2 to 6, inclusive, are being prepared for seeding rye. Manure has been applied to plots C-2 to 4, inclusive.

The lamb-feeding experiment is progressing as well as was expected. The turkey-feeding experiment has reached its twenty-second week. Gains in dry-lot feeding are not quite so large as were recorded in 1935 and in 1934 at the corresponding stage of the experiment.

The treatment of dairy cows for mastitis is progressing satisfactorily. Several near-fresh heifers are being isolated and precautions taken to immunize them against infection.

Station visitors during this period were Messrs. F. B. Headley and C. E. Fleming, of the Nevada Agricultural Experiment Station.

E. W. Knight.

Prosser

During the week ending October 10 the maximum temperature was 83, mean maximum 75.6, minimum 35, mean minimum 40.3, and the greatest daily range 41°. The mean hourly wind velocity was 1.09 miles. Evaporation amounted to 0.755 inch.

Work on the rotations has included plowing the alfalfa plots that are to be planted to sugar beets early next spring and cutting the first year sweetclover plots for hay.

The harvest of Winesap apples has been completed. Apple prices are better this year than they have been for several years. Extra Fancy Jonathans are now $1.35 a box* and Delicious are $1.65 a box for the same grade.

Market prices: U. S. No. 1 potatoes $24 a ton, No. 2's $15 a ton, a combination of No. 1 and No. 2 $18 a ton; prime steers $6.50, choice hogs $9.75, and choice lambs $7.50 a hundred pounds.

During the week ending October 17 the maximum temperature was 80, mean maximum 73.7, minimum 37, mean minimum 41.9, and the greatest daily range 37°. The mean hourly wind velocity was 1.27 miles. The total evaporation was 0.745 inch.

Potatoes in the rotations were harvested during the week. The yield was less this year than last year. The wireworm damage was more extensive on all the plots this year. Yields of potatoes from farm fields average about 400 bushels per acre.

The yield of sweetclover hay from plots in the rotations exceeds 2

* A packed box weighs approximately 42 pounds.

Prosser (cont'd)

tons per acre. The highest yield, 2.7 tons per acre, was produced on rotation 40, and the next highest, 1.78 tons per acre, came from rotation 44. These plots were seeded with a nurse crop in the spring.

The harvest of sugar beets began in the valley during the week. To the factory at Bellingham, Washington, 8000 tons of beets have been shipped. Officials of the Sugar Company estimate that half the tonnage has been shipped. Construction of the new sugar factory at Toppenish is progressing rapidly. The site has been cleared and forms are being placed for the concrete.

The annual meeting of the Washington Irrigation Institute was held at the Grand Coulee Dam October 15 and 16. The attendance was above the average of the last few years.

Carl A. Larson.

Scotts Bluff

During the week ending October 10 the average maximum temperature was 70, with a maximum of 80; the average minimum was 34, with a minimum of 29°. The daily wind movement averaged 5.9 miles an hour. There was 0.23 inch of precipitation.

Station activities during the week included digging potatoes and sugar beets.

Mr. S. H. Hastings visited the station on October 6 and Dr. H. O. Werner on October 6, 7, and 8.

During the week ending October 17 the average maximum temperature was 69, with a maximum of 82; the average minimum was 39, with a minimum of 34°. The daily wind movement averaged 6.2 miles an hour. There was 0.03 inch of precipitation.

Work on the station during the week included hauling manure from the dairy corrals and digging sugar beets. Most of the beets in field K and in the manure and variety experiments conducted by Mr. S. B. Nuckols have been harvested. Yields are good, and the sugar content is ranging from 15 to 18.5 percent.

The harvest of potatoes has been completed throughout the valley. A dozen or two $10,000 crops have been harvested by as many growers. Practically all of the late crop has been placed in storage. The potatoes were of excellent quality and generally well matured. None were damaged by frost.

The harvesting of sugar beets is in progress throughout the valley. Six Great Western Sugar factories have been operating since October 7, processing the beets. The yields are good except where the acreage was too large to be adequately irrigated with the limited water available.

Good feeder lambs have been selling for 7 and 8 cents a pound. Because of this price and the cost of concentrates, lamb feeders in this area are reluctant to buy, and very few lambs have been purchased so far.

Mr. A. E. Anderson, State and Federal Agricultural Statistician, said that production forecasts for Nebraska crops virtually were unchanged in the last month. He estimated that 35 percent of the 1936 wheat harvest is still on hand and 12 percent of the 1935 corn crop. Hay and forage are ample but grain feeds are extremely short. Nebraska corn was estimated at 12 percent of normal.

Lionel Harris.

Umatilla

Report for the week ending October 3.*

Temperatures			Wind velocity, Miles per hour	Daily evaporation in.	Precipitation in.
Mean maximum	Mean minimum	Mean			
80	46	63	8.5	0.149	0.04

Station activities have included harvesting grain sorghums and field corn and hauling manure.

Yields of Threshed Broomcorn - 1936

Variety	Pounds per acre
Evergreen Dwarf	549
Scarborough	795
Black Spanish	628
White Italian	652

Report for week ending October 10.

Temperatures			Wind velocity, miles per hour	Daily evaporation, in.	Precipitation, in.
Mean maximum	Mean minimum	Mean			
77	41	59	1.3	0.106	None

Average weights of turkeys on October 9, at 24 weeks of age.

Lot	Sex	Ration	Average weight, pounds
1	Toms	24% Protein mash	20.3
2	Hens	24% " "	12.8
3	Toms	21% " "	19.5
4	Hens	21% " "	12.6
5	Toms	Scratch and milk	19.1
6	Hens	" " "	12.9
7	Toms	18% Protein mash	17.8
8	Hens	18% " "	12.3

Mr. J. C. Snyder, Extension Horticulturist, Washington State College, was an official visitor.

H. K. Dean.

*This report was not received in time to include it in the previous issue.

WEEKLY REPORTS

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
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Vol. XXXVIII October 24 and 31, 1936 No. 22

Belle Fourche

Report for October.

For the month of October the maximum temperature was 82, minimum 0, and the mean 46°, which is the 28-year average for the month. The precipitation was 0.89 inch, the only beneficial amount received since April 30.

The harvesting of potatoes was completed October 16. The maximum yield, 177.3 bushels per acre, was obtained from rotation 30, and the minimum yield, 25.3 bushels, came from rotation 27. The average yield was 118.5 bushels per acre. The low yield was due in part to the poor stand resulting from an extremely dry spring and a lack of irrigation water. Of the total yield of potatoes, 81.8 percent was marketable.

The harvesting of sugar beets was completed on October 27. The maximum yield, 11.72 tons per acre, was obtained in rotation 35. The minimum yield, 2.42 tons per acre, came from rotation 66. The average for all rotations was 7.19 tons per acre. Ten samples of ten beets each were taken from all the rotations. The average percentage of sugar in beets from all the rotations was 18, with an average purity of 86.3 percent. The harvest of beets in the district is practically completed.

On September 18 750 lambs of good Rambouillet breeding, with an average weight of 55.2 pounds and costing 7 cents a pound, were placed in the lots and are being fed the following rations:

Lot 1. Corn and alfalfa hay.
Lot 2. Corn, monocalcium phosphate, and alfalfa hay.
Lot 3. Corn and Sudan grass hay.
Lot 4. Corn, cottonseed cake, and Sudan grass hay.
Lot 5. Corn and ambercane.
Lot 6. Corn and wheatgrass hay.
Lot 7. Corn, cottonseed cake, and wheatgrass hay.
Lot 8. Corn, molasses, and alfalfa hay.
Lot 9. Corn, cottonseed cake, and alfalfa hay.
Lot 10. Corn, pulp, and alfalfa hay.
Lot 11. Corn, cottonseed cake, pulp, and alfalfa hay.

Beyer Aune.

Huntley

During the two-week period ending October 31 the maximum temperature was 81 and the minimum 17°. There was 0.25 inch of precipitation, rain turning to snow.

Conditions were favorable for field work during most of this period. On October 31 a snowfall of 5 inches accompanied by severe freezing stopped the beet harvest and other outside activities. The beet harvest was about

Huntley (cont'd)

90 percent completed when this storm occurred.

The harvest of beets at the station was completed on October 22. Other station work included hauling manure and fall plowing, which were nearly completed.

Market prices: Alfalfa hay, $12 to $14 a ton; Great Northern beans, $4.90 a cwt.; potatoes, $1.50 to $1.75 a cwt., butterfat, 33 cents a pound; eggs, 40 cents a dozen.

Summary of Yields in the Irrigated Rotations, 1936

	Sugar Beets (Tons per acre)	Potatoes (Bushels per acre)
Maximum yield	14.59	283.3
Minimum "	1.45	50.7
Average "	7.99	183.8

In the maximum production test sugar beets yielded 19.43 tons per acre and potatoes 390.7 bushels per acre.

Dan Hansen.

Newlands

During the three-week period ending October 31 the average maximum temperature was 66.5, with a maximum of 82 on the 11th; the average minimum was 32.5, with a minimum of 22° on the 28th and 29th. The mean temperature was 49.5°. The wind velocity averaged 1.99 miles an hour. There was 0.47 inch of precipitation. The October temperatures averaged about 1° higher than the usual mean temperatures during this month. The minimum temperature of 22° on October 28 and 29 put an end to all crop growth.

Few purchases of hay are being made, although freight rates have been reduced on hay that is shipped from this project to drought areas. A great deal of alfalfa has been purchased for shipment into the dairying sections of California, and a few thousand tons have been purchased to be ground locally into alfalfa meal.

Station activities have included irrigating, seeding winter wheat and rye, and excavating trenches for a pipe line for the purpose of fire protection.

The lamb-feeding experiment is progressing better than was expected. The lambs are growing well and few troubles have developed.

There are very few cases of mastitis at present in the dairy herd. Periodical tests show a decrease in the number of reactors to this disease. Two heifers that have freshened have been added to the milking herd.

For some reason the turkeys are not doing so well as compared with those of former years. The original plans called for their sale on the Christmas market.

E. W. Knight.

Prosser

During the week ending October 24 the maximum temperature was 75, mean maximum 69, minimum 29, mean minimum 35.4, and the greatest daily range 37°. The mean hourly wind velocity was 0.607 mile. The total evaporation amounted to 0.589 inch.

Prosser (cont'd)

The headgates of the Sunnyside Canal were closed October 21.

The digging of potatoes in farm fields has been completed.

The sugar beet plots in the rotation series were harvested the latter part of the week. The highest actual yield from any plot was 20.6 tons per acre on rotation 21; the lowest yield was 8.5 tons per acre from rotation 8. The average yield per acre was 13.5 tons. The average yield last year was 9.5 tons.

Market prices: U.S. No. 1 potatoes, $30 a ton; U.S. No. 2 potatoes, $20 a ton - but growers were reluctant to sell at these prices; barley and oats, $29 and $27 a ton, respectively; hops, baled, 43 cents a pound; hay, $10 a ton in the stack; soft white wheat, 86 cents a bushel; butterfat, 33 cents a pound.

During the week ending October 31 the maximum temperature was 74, mean maximum 65.4, minimum 26, mean minimum 33.7, and the greatest daily range 37°. The mean hourly wind velocity was 0.86 mile. The total evaporation amounted to 0.508 inch. There was no precipitation.

The Mercer and Hill Sheep Company, who are going to lamb 3000 ewes at the station this winter, have constructed two large sheep sheds in the station feed-yards.

Corn on the rotation plots is being harvested.

The sugar content of the sugar beets grown in four different rotations was determined by the Utah-Idaho Sugar Company to be as follows:

Rotation No.	Preceding Crop	Sugar in the Beet (Percent)	Purity (Percent)
70	Potatoes	14.8	84.3
72	Alfalfa	16.3	87.0
76	Corn	15.5	85.5
40A	Sweetclover	16.4	85.7

Carl A. Larson.

Scotts Bluff

During the week ending October 24 the average maximum temperature was 55, with a maximum of 82 on the 20th; the average minimum was 27, with a minimum of 13 on the 22d. The daily wind movement averaged 7.1 miles an hour. There was 0.11 inch of precipitation.

Station activities have included digging sugar beets, hauling manure, and repairing sheep pens for lamb-feeding operations. Light snow and rain checked harvesting activities for three days during the week. Approximately 85 percent of the beets in the valley have been dug and delivered.

Good feeder lambs have been selling at $7.25 to $7.90 a cwt., with culls as low as $5 a cwt. The top price for fat lambs has been $8.50 a cwt.

Potatoes have been selling at $1.70 to $1.80 a cwt.

During the week ending October 31 the average maximum temperature was 56, with a maximum of 69 on the 31st; the average minimum was 26, with a minimum of 17 on the 27th. The daily wind movement averaged 7.2 miles an hour. There was 0.05 inch of precipitation.

The sugar beet harvest at the station was completed during the week. The stand of beets was unusually good, indicating little loss after thinning. The yield ranged from 8 to 20 tons per acre. The sugar content

Scotts Bluff (cont'd)

averaged 16.7 percent. Approximately 10 percent of the acreage in the valley remains to be dug.

The station has received 311 white-faced lambs to be used in feeding experiments. Tentative plans for feeding these sheep involve comparisons of corn stover and corn fodder; soybean meal, cottonseed cake, and cull beans; wet pulp and dry pulp; and cane and beet molasses.

Prof. H. P. Davis, of the Dairy Department, University of Nebraska, spent two days at the station to start a feeding experiment with ten dairy cows in two lots of five cows each. The purpose of the test is to determine the value of beet tops as compared with alfalfa as a roughage for milch cows.

Lionel Harris.

Umatilla

During the week ending October 17* the maximum temperature was 80, the minimum 37, and the mean 59°. The wind velocity averaged 4.1 miles per hour. The daily evaporation averaged 0.129 inch. There was no precipitation.

At the station the harvest of miscellaneous crops was completed and manure was hauled.

Mr. J. S. Carver, Chief of the Department of Poultry Husbandry, Washington State College, visited the station to discuss the turkey experiments. The Washington State Experiment Station is hopeful that the next legislature will make an appropriation for turkey-feeding experiments.

During the week ending October 24 the maximum temperature was 83, the minimum 29, and the mean 52.5°. The wind velocity averaged 1.5 miles an hour. The daily evaporation amounted to 0.110 inch. There was no precipitation. The minimum temperature of 29° on October 22 brought the first killing frost.

Rye was seeded for a cover crop to be turned under in the spring where cultivated crops have been grown during the past season. Approximately ten acres of the area subjected to wind erosion west of the station tract were seeded to rye.

There has been no rain this fall and as late irrigation water is not available, the alfalfa is in an unfavorable condition to endure the winter. The cover crops seeded early have not yet germinated, and it is doubtful that these crops and the rye seeded in the wind-erosion area will make any appreciable growth this fall.

Yields of Broomcorn

Variety	Pounds per acre of Thrashed Straw
Scarborough (dwarf)	794
White Italian	652
Black Spanish	627
Evergreen Dwarf	549.

H. K. Dean

*This report was not received in time to include it in the previous issue.

Yuma

During the two-week period ending October 31 the maximum temperature was 90, mean maximum 83.9, minimum 45, and the mean minimum 51.4°. There was no precipitation. Eight days were clear, one was cloudy, and five were partly cloudy. The wind movement averaged 1.36 miles an hour. The mean temperature for the month of October was 71.5° and the total precipitation 0.01 inch.

Normal temperatures, low humidity, and almost no rainfall have combined to make fall harvesting conditions very favorable. Cotton picking on the project continues as fast as cotton pickers can be obtained. At the end of October a total of 6,315 bales of cotton had been ginned as compared with 7,637 bales for the corresponding date last year and 6,316 bales in 1934. Most of the fields have been picked over the first time, and many of the growers are awaiting the first killing frost for the final picking.

About a carload of alfalfa hay and straw is being shipped to the coast each week. Alfalfa seed in limited quantities is selling at 18 cents a pound, but many growers are holding for 20 cents.

Salt marsh caterpillars are present in sufficient numbers to injure cotton, alfalfa, and truck crops. The injury to cotton is too late to be serious, but to protect young alfalfa and lettuce poison-bran mashes are being used or the fields are being ditched around with standing water.

The U. S. Geological Survey reports that the flow of the Colorado River for October at Grand Canyon was 360,000 acre-feet as compared with 385,000 acre-feet in October 1935. The discharge at Parker, below Boulder Dam, was 440,000 acre-feet. The estimated storage behind Boulder Dam on November 1 was 9,425,000 acre-feet.

Station work during the last two weeks has included harvesting grain sorghums, planting green manure crops in the rotations, repairing cotton gin, harvesting soybean varieties, planting grass nursery, and general cultivating and irrigating.

Mr. J. S. Townsend was at the station repairing the cotton gin from October 14 to 21. Mr. S. H. Hastings visited the station and project October 20 to 24, and Messrs. J. O. Ware, C. J. King, and Geo. J. Harrison inspected the station and project cotton plantings on October 28 and 29.

E. G. Noble.

M I S C E L L A N E O U S

An article entitled "The Salinity of Irrigation Water," by Mr. C. S. Scofield, was published in the Smithsonian Report for 1935. Reprints of this paper are available for distribution.

A manuscript entitled "Subsoil Waters of Newlands (Nev.) Field Station," by Messrs. Carl S. Scofield, C. Lloyd Moon, and Elmer W. Knight, has been published as Technical Bulletin No. 533 of the Department.

An article entitled "The Determination of Potassium by Means of an Aqueous Solution of Trisodium Cobaltinitrite in the Presence of Nitric Acid", by Mr. L. V. Wilcox, has been approved for publication in INDUSTRIAL AND ENGINEERING CHEMISTRY.

Mr. S. H. Hastings returned to Washington from a southwestern field trip on November 3.

W E E K L Y R E P O R T S

Of The Division Of
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Vol. XXXVIII November 7 and 14, 1936 No. 23

Huntley

During the two-week period ending November 14 the maximum temperature was 64 and the minimum -10°. There was 0.42 inch of precipitation (snow).

Because of low temperatures field work was not possible for several days following the snowfall on October 30. The beet harvest was nearly completed, but a small acreage still remains in the field in most sections of the valley. The initial payment of $5.25 a ton was made on November 15 for beets delivered in October. This is the highest initial per-ton payment made in recent years. As the 1936 sugar crop is marketed, additional payments will be made, the amount depending on the selling price of sugar and the sugar content of the beets.

Recent station activities have included moving the horse barn to a new location east of the dairy buildings, hauling feeds and manure, and repairing machinery and buildings.

Dan Hansen.

Newlands

During the two-week period ending November 14 the average maximum temperature was 53.8, with a maximum of 63 on the 11th and 12th; the average minimum was 17, with a minimum of 10° on the 3d. The mean temperature was 35.4°. The wind velocity averaged 1.49 miles an hour. There was no precipitation.

At this time the Lahontan Reservoir contains about 150,000 acre-feet of water, the largest amount there has been for many years. There would be ample water for irrigation purposes during 1937 even if there were less snow than usual this winter.

The livestock feeding operations at the station are progressing nicely. About the required number of cows in the dairy herd are free from all undesirable factors that are controllable and that might influence the results. The turkeys are somewhat below the average weights of former years, but are showing profitable gains. A new hog-feeding experiment has been started. The last hog-feeding experiment was so profitable that the same rations will be used again in order to check any errors that might have been made in the former experiment.

One outstanding development in the sheep-feeding experiment has been the effect of local alfalfa hay in the ration. It has been impossible to get these sheep on a grain ration equaling the rations that can be fed in the Reno area. Analysis of hay being fed in Fallon and that being fed in Reno shows 3 percent more protein in the Fallon hay. This probably accounts for the difference in the amount of barley that can be fed.

Newlands (cont'd)

On November 12 five men were started on a W.P.A. project at the station, painting buildings, laying about 1200 feet of pipe for fire protection, and developing and landscaping some parts of the station grounds. If available, the number of men employed will be increased.

E. W. Knight.

Prosser

During the week ending November 7 the maximum temperature was 57, mean maximum 49.7, minimum 13, mean minimum 25.7, and the greatest daily range 31°. The mean hourly wind velocity was 1.75 miles. The October rainfall this year was 0.59 inch below normal; however, the precipitation since January 1 has been only 0.10 inch below normal.

The harvest of corn on the rotation plots was finished during the week. All crops from the rotation plots are now harvested. The cornstalks were disked down and those corn plots which are to be seeded to sugar beets next year were plowed as well as other plots that will be seeded to sugar beets next year. Samples of potatoes from the rotation plots were sorted to determine the grade of potatoes produced in each rotation. Harvesting of corn on farm fields is still in progress.

The Mercer and Hill Sheep Company has been hauling and stacking chopped hay, which will be fed on the station grounds to sheep prior to and during lambing; thereafter, long hay produced on the station will be fed.

Twenty-one hogs, with an average weight of 198 pounds, were sold at the station during the week for $8.85 a cwt.

Market prices: No. 1 turkeys, 13 cents a pound, but so far there is very little demand at that price; No. 1 potatoes, $32 a ton, and No. 2's, $22 a ton, f.o.b. car; top price for hops, 43 cents a pound, baled, f.o.b. car; butterfat, 34 cents a pound.

Apple shipments so far this season have amounted to 3,235 carloads as compared to 1,939 carloads for the corresponding period last year.

During the week ending November 14 the maximum temperature was 50, mean maximum 47.7, minimum 14, mean minimum 18.3, and the greatest daily range 31°. The mean hourly wind velocity was 0.95 mile. There was no precipitation.

The lowest actual yield of shelled corn from the rotation plots was 17.1 bushels, obtained on rotation 70 where the wireworm damage was severe. A yield of 76 bushels per acre was obtained on rotation 74. The average yield for all corn plots in the rotation was 48.3 bushels per acre. These yields of shelled corn are based on the corn having a moisture content of 12 percent.

Officials of the Utah-Idaho Sugar Company and railroad officials are holding meetings from Ellensburg to Walla Walla for the purpose of interesting farmers in growing sugar beets.

A carload of potatoes was sold from the station, the No. 1's bringing $30.50 and the No. 2's $20.50 a ton, sacks and sorting furnished, f.o.b. car.

Carl A. Larson.

Scotts Bluff

During the week ending November 7 the average maximum temperature was 39, with a maximum of 62 on the 1st; the average minimum was 15, with a minimum of -2° on the 3d. The daily wind movement averaged 9.9 miles an hour. There was 0.53 inch of precipitation.

Little field work has been possible recently because of snow and cold weather. There was a snowstorm, really a light blizzard, the first part of the week and another the last part, leaving only one day that was suitable for digging beets. The temperature dropped below zero during both storms. Approximately 4,000 acres of beets remain to be dug in the valley. As the wind movement has been comparatively light, the snow has not drifted badly. Melting on the fields where it fell, the snow is adding to the moisture supply of the soil, which generally is very dry.

Station activities have included husking corn, hauling manure, coal, and feed, and getting lambs and dairy cows ready to go on test next week.

According to a recent report of Mr. A. E. Anderson, State and Federal Crop Statistician, the North Platte Valley is in the best financial condition since the World War. He said three cash crops alone - potatoes, sugar beets, and beans - will bring the farmers $9,300,000. Corn and alfalfa are worth $3,200,000. His report indicates that 20,000 acres of potatoes yielded at the rate of 180 bushels an acre and 55,000 acres of sugar beets at 12 tons an acre.

During the week ending November 14 the average maximum temperature was 44, with a maximum of 55 on the 14th; the average minimum was 19, with a minimum of -3° on the 8th. The daily wind movement averaged 5.2 miles an hour. There was no precipitation.

Ten pens of 30 lambs each were placed on test at the beginning of the week. The lambs averaged 58 pounds and cost $7.75 a cwt. They are being fed the following rations:

Pen No.

1. Corn, alfalfa.
2. Barley, ground corn fodder, cottonseed cake, mineral.
3. Barley, ground corn fodder, cottonseed cake.
4. Barley, dried pulp, corn, cottonseed meal, beet tops, alfalfa.
5. Barley, dried pulp, corn, soybean meal, beet tops, alfalfa.
6. Barley, dried pulp, corn, beet tops, alfalfa.
7. Dried pulp, cull beans, beet tops, alfalfa.
8. Dried pulp, beet molasses, cottonseed cake, beet tops, alfalfa.
9. Dried pulp, cane molasses, cottonseed cake, beet tops, alfalfa.
10. Dry pulp, beet molasses, wet pulp, beet tops.

Two pens of five dairy cows each were placed on test also. The quantity of the grain ration fed is governed by milk production. For roughage one pen is being fed alfalfa alone, while the other receives beet tops principally. The rations are to be reversed each 30 days, with a ten-day period for adjustment.

Other station activities included grinding hay and corn stover, and plowing and preparing land for a winter planting test of various crops.

On November 13 the seven Great Western sugar factories in western Nebraska and Wheatland, Wyoming, sent out checks to beet farmers totaling $3,249,530. The Holly factory at Torrington, Wyoming, sent checks totaling $905,000. These sums are in payment for beets delivered previous to October 31, a little over 90 percent of the total beet crop. The Great

Scotts Bluff (cont'd)

Western paid an initial average price per ton of $5.01 and the Holly Company $5.00.

Prof. M. A. Alexander, of the Animal Husbandry Department of the University of Nebraska, visited the station during the week to aid in getting the lambs on test.

About six carloads of turkeys were shipped from the North Platte Valley to eastern markets on November 13.

Summary of Yields of Potatoes in the Irrigated Rotations - 1936.

	Field K	Field E
	(Bushels per acre)	
Maximum yield	234.7	238.3
Minimum "	64.3	50.7
Average "	158.4	120.0

Lionel Harris.

Yuma

During the two-week period ending November 14 the maximum temperature was 85, mean maximum 78, minimum 35, and mean minimum 44°. There was no precipitation. Ten days were clear and four were partly cloudy.

With drying winds from the west and northwest, conditions have been favorable for cotton picking and ginning. The autumn has been abnormal in the amount of rainfall as some moisture is usually recorded in September, October, or November. There has been only 0.01 inch of rain since August 18 of this year. A good rain would be welcomed as the roads are dusty and all plant life is thoroughly coated with dust. The heavy vehicular traffic through the Bard area by reason of the construction of the All-American Canal and the Imperial Dam is primarily the cause of the excessive amount of dust.

Agricultural activities on the project at the present time include planting alfalfa, barley, wheat, and fall gardens; picking cotton; and harvesting grain sorghums. A total of 7260 bales of cotton had been ginned up to November 12. Lettuce cutting will be started November 20 and will continue until about March 30.

A pecan growers' meeting was held at the Arizona Experiment Station in the Yuma Valley on November 10, with 25 people attending. Dr. A. H. Finch is in charge of this cooperative work on pecans for the U. S. Department of Agriculture and the Arizona Experiment Station. He reviewed the season's work on irrigation practices, fertilizer tests, and harvesting methods.

On November 12 a cotton growers' meeting was held at the Yuma Field Station at Bard to review the season's work on irrigated rotations and cotton variety tests. The 55 growers in attendance were from the Yuma Valley, Imperial Valley, and the Bard district.

Station work during the two-week period has included plowing and leveling plots for alfalfa and grain; planting alfalfa, winter grains, and cover crops; picking cotton; and harvesting grain sorghums.

Mr. R. E. Beckett, of the Cotton Division from Sacaton, Arizona, was at the station from November 9-14 to direct the picking and to take field notes of the regional variety cotton test.

E. G. Noble.

WEEKLY REPORTS

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Vol. XXXVIII November 21 and 28, 1936 No. 24

Huntley

During the two-week period ending November 28 the maximum temperature was 68 and the minimum 17°. There was 0.03 inch of precipitation (snow).

Conditions were favorable for field work during this period. Following the completion of the sugar beet harvest a large amount of fall plowing is being done on project farms. There is very little winter feeding in this section due to a shortage of feed and uncertain market prices for the finished product.

At the station the corn was husked and fall plowing completed. Other station work included repairs to buildings and improvements on the station grounds.

Dan Hansen.

Newlands

During the two-week period ending November 28 the average maximum temperature was 58.9, with a maximum of 65 on the 15th; the average minimum was 18.1, with a minimum of 11° on the 28th. The mean temperature was 38.5°. The wind velocity averaged 0.81 mile an hour. There was no precipitation.

The weather has been favorable for work in the fields and for other extramural activities. Several field plots have been manured and plowed, and weeds have been burned.

The W.P.A. workers have painted the roofs of all station buildings and are making good progress in painting the exterior walls. Several trees have been removed and numerous hedges torn up. About 1,000 feet of 2-inch pipe has been laid to supply water for fire protection purposes. It is possible to throw a large stream from a 1½-inch hose for a period of 2½ hours from the stored capacity of the dug well. This time should be increased by the flow of underground water into the well.

The turkeys in the feeding experiment will be ready for the Christmas market and will probably be killed about December 15. Some of the lambs are now ready for market, but will be held for a short time until the end of the feeding experiment, when three or more carloads will be shipped to San Francisco. Several heifers have freshened so that the dairy herd is rapidly approaching the desired 30-cow unit. Treatments for mastitis are being continued, and tests show that there are fewer reactors to this disease.

The top price of 21 cents a pound paid for turkeys sold on the Thanksgiving market was a disappointment to local growers. This low price, with the high feed costs, leaves a very small margin of profit.

E. W. Knight.

Prosser

During the two-week period ending November 28 the maximum temperature was 56, mean maximum 44.8, minimum 17, mean minimum 23.2, and the greatest daily range 32°. The mean hourly wind velocity was 0.98 mile. Precipitation amounted to 0.02 inch. The precipitation from September 1 to November 30 was 2.02 inches below normal. The month of November was the driest month ever recorded at this station.

At Yakima on November 20 Dr. Eubanks Carsner, of the Division of Sugar Plant Investigations, Bureau of Plant Industry, addressed a group of county agents, business men, and farmers relative to the value of curly-top resistant seed. A great deal of interest was shown in the work accomplished by Dr. Carsner and others in the production of resistant seed.

Carl A. Larson.

Scotts Bluff

During the week ending November 21 the average maximum temperature was 61, with a maximum of 65 on the 20th; the average minimum was 27, with a minimum of 17° on the 21st. The daily wind movement averaged 6.8 miles an hour. There was no precipitation.

Carrots, parsnips, and onions from the winter planting test were graded and stored for comparison of keeping qualities according to the time planted. Crops included in the test for the current winter are sugar beets, onions, carrots, parsnips, lettuce, peas, and beans. The November planting has been made. Mild, fair weather since November 10 melted the snow of an earlier date, leaving the soil moist and in a good condition for the preparation of a desirable seedbed.

Beet tops have been hauled from the Walker place, which henceforth will serve as a pasture for the station horses. Beet tops on the plots have been piled to dry for later use in lamb- and dairy-feeding experiments.

The sugar beet harvest in the valley has been completed, and the campaign at certain factories, including the one at Scottsbluff, is drawing to a close.

Mr. W. T. Young, of Banner County, has just completed digging a $100,000 potato crop from the soil of his Bull Canyon Ranch. Mr. Young raised 56,000 bushels of certified seed potatoes on 600 acres of dry land, which was summer fallowed last year.

Approximately 250 farmers of Mead, Nebraska, met this week and discussed the possibility of artichokes becoming a popular farm crop in this area.

The Agronomy Department of the Nebraska Agricultural College informed farmers that the domestic supply of alfalfa seed is the lowest in years. The 1936 crop, agronomists reported, is expected to be one fourth less than the small 1935 crop.

During the week ending November 28 the average maximum temperature was 53, with a maximum of 61 on the 28th; the average minimum was 20, with a minimum of 15° on the 25th. The daily wind movement averaged 12.5 miles an hour. There was no precipitation.

During the first part of the week high winds moved great quantities of soil out of this region. In the North Platte Valley the erosion damage was slight, but on the borders of the valley and in the dry land territory of Alliance great damage occurred. The dust storms at Alliance were as

Scotts Bluff (cont'd)

severe as any this section has experienced. Last summer, owing to drought, crops failed to grow in this dry land area, leaving the soil so bare and dry that the wind easily lifts it up and blows it away.

Several sacks of choice Triumph seed potatoes grown at this station have been shipped to Honolulu for an experiment on the Hawaiian Islands, where they will probably be planted during December.

Station activities included hauling beet tops, manure, corn, hay, etc. There is a large quantity of high quality beet tops in the valley this year. Farmers handle the tops carefully, utilizing them in the various feeding operations.

At the close of business on November 25 1,143 carloads of lambs had been received in the North Platte Valley of western Nebraska and eastern Wyoming for feeding purposes. Estimating 300 lambs in each carload, there are at present 342,900 lambs on feed in the valley as compared with 535,000 fed during the 1935-36 season.

Sugar beet growers in the Great Western Sugar Company's area already have received $14,840,495 for initial payments on their 1936 crops.

Lionel Harris.

Umatilla

There was an extreme deficiency of moisture during November. The normal precipitation for that month during the last 25 years has been 1.16 inches, while this year the precipitation was only 0.01 inch. The normal precipitation from September 1 to November 30 is 2.31 inches, while for that three-month period this year it has been 0.24 inch, about 10 percent of normal This situation is typical of conditions in the Northwestern States, extreme deficiencies of moisture existing even west of the Cascade Mountains. The maximum temperature was 60, the minimum 11, and the mean 33.7°. The wind movement averaged 1.49 miles per hour, which is considerably below normal.

On November 14 202 of 383 turkeys were killed for the Thanksgiving pool; 90.5 percent graded prime and practically all the rest graded choice.

Summary of Results of Turkey-Feeding Experiment

Feed	24 Percent Mash		21 Percent Mash		Scratch and Milk		18 Percent Mash	
Lot Nos.	1	2	3	4	5	6	7	8
Sex	Toms	Hens	Toms	Hens	Toms	Hens	Toms	Hens
Weight (lbs) per turkey killed....	26.5	16.2	25.1	15.7	26.2	16.8	23.7	15.3
Weight (lbs.) per turkey kept	23.7	14.7	23.6	14.3	23.9	14.5	22.6	13.9

During the entire month of November it was possible to continue field work, which consisted of cleaning ditches, repairing turn-outs and pipe lines, and hauling manure. The roads are being given a light top coat of fine gravel obtained from the Highway Commission.

H. K. Dean.

W E E K L Y R E P O R T S

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Vol. XXXVIII December 5 and 12, 1936 No. 25

Belle Fourche

Report for November

During November the maximum temperature was 68° and the minimum 5°. The mean temperature for the month was 3° above normal. The total precipitation for the year to November 30 amounted to 10.25 inches. On October 31 and November 1 snow fell to a depth of 5.5 inches, making 0.42 inch of precipitation. The snow was drifted by high winds on November 2. An additional 0.25 inch of precipitation was received in light snows on November 4 and 6. The first week of the month was cold and stormy, but mild, dry weather prevailed thereafter.

High winds of almost daily occurrence from November 20 to 28 caused extensive soil blowing. The highest wind velocity occurred on November 22, ranging from a maximum of 50 miles an hour to an average of 32 miles an hour from 8:00 a.m. to 4:30p.m. and 40.7 miles an hour from 1:30 p.m. to 4:30 p.m.

The feeder lambs were weighed on November 23. The average gain for all the lots was 11.63 pounds per lamb. The best gains, an average of 0.487 pound a day, were made in lot 11, fed shelled corn, cottonseed cake, pressed beet pulp, and alfalfa hay. The poorest gains were made in lots 5 and 6. Lot 5 was fed shelled corn and cane and lot 6 shelled corn and wheatgrass hay. The average daily gain per lamb in these lots was 0.237 pound.

Alfalfa hay is selling for $15 a ton in the stack. Corn that has been shipped in is selling for $2.15 a cwt.

The last half of the month was very favorable for fall work. The precipitation the first part of the month put the ground in condition for plowing, and most farmers took advantage of this opportunity.

The first payment on sugar beets by the Utah-Idaho Sugar Company was at the rate of $5.25 a ton.

During November C.C.C. workers replaced the wooden structures on the irrigation system with concrete. All the wooden culverts will be replaced with concrete tile during the winter. Some 2000 feet of tile drain will also be laid, which will complete this project as orignially planned.

Beyer Aune.

Huntley

During the two-week period ending December 12 the maximum temperature was 58 and the minimum -15°. There was 0.17 inch of precipitation.

A snowfall of about 4 inches on December 6 was followed by several days of severe freezing and all outside work was discontinued.

The amount of winter feeding of livestock in this section is much below the average of former seasons. The market for feeder cattle is con-

Huntley (Cont'd)

tinuning active at the sales yards in Billings. Most of the stock sold at these sales is shipped out of the State.

The last of the sugar beets in storage piles are being shipped to the plant in Billings, and the processing of the crop will be completed this month.

Summary of Yields of Corn in the Irrigated Rotations - 1936

	Bushels per Acre
Maximum yield	64.6*
Minimum "	16.8
Average "	39.9

*"Hogged" and yields estimated.

Dan Hansen.

Newlands

During the two-week period ending December 12 the average maximum temperature was 47.5, with a maximum of 57 on December 7; the average minimum was 12.9, with a minimum of 5° on December 11. The mean temperature was 30.2°. The wind velocity averaged 1.44 miles an hour. There was a trace of precipitation. The weather has been fair and mild for this time of the year.

The renovation of the station buildings and grounds is progressing satisfactorily. Other work at the station has included laying 1000 feet of 2-inch water pipe for fire protection. These mains are connected to a turbine pump in a recently completed well, which is 17 feet deep. The flow of water is believed to be sufficient to maintain a discharge of 100 gallons a minute for 2½ hours.

Some of the soil banks along the large drainage canal are being lowered so that a general view of the station fields can be seen from the highway.

The turkey experiment has been completed. The turkeys have been killed and marketed through the local branch of the Northwestern Turkey Association. The prices received for turkeys in the Christmas pool were rather discouraging. The net returns to the grower may be a little lower than those received for turkeys sold on the Thanksgiving market.

The dairy herd is in better shape than it has been for the last year or two. The hogs also are doing well. The lambs in the feeding experiment have shown a very gratifying increase in weight, which is being put on with less grain than is required for similar feeding experiments conducted near Reno.

E. W. Knight.

Prosser

During the two-week period ending December 12 the maximum temperature was 57, mean maximum 36.8, minimum 13, mean minimum 22.1, and the greatest daily range 33°. The mean hourly wind velocity was 2.31 miles. The precipitation amounted to 0.1 inch.

Field work on the station included fencing farm fields for sheep feeding, pruning fruit trees, and sorting potatoes.

Market prices: No. 1 hay, $8 a ton in the stack; soft white wheat, 90 cents a bushel; U. S. No. 1 potatoes, $28 to $30 a ton; barley and oats,

Prosser (cont'd)

$29 and $27 a ton, respectively; hops, baled, 40 cents a pound; butterfat, 33 cents a pound.

Carl A. Larson.

Scotts Bluff

During the week ending December 5 the average maximum temperature was 41, with a maximum of 57 on November 30; the average minimum was 15, with a minimum of 9° on December 3. The daily wind movement averaged 7.8 miles an hour. There was 0.10 inch of precipitation.

Station activities during the week included threshing beans, grinding corn fodder for the lambs, and hauling manure and gravel.

The daily wind movement averaged 4.7 miles an hour less than during the preceding week, when high winds caused considerable soil blowing. Negligible wind erosion damage occurred during the present period.

The alfalfa weevil quarantine has been lifted from most of Scotts Bluff County, making it possible to ship hay to other portions of the State.

An auction sale of dairy stock shipped from Neillsville, Wisconsin, was held at Gering on December 4. The North Platte Valley Cooperative Cheese Company sponsored the sale to increase the number of high quality cows in this valley.

Summary of yields of beans and corn in the irrigated rotations - 1936

	Bushels per acre	
	Corn	Beans
Maximum yield	42.6	11.9
Minimum "	15.4	11.4
Average "	30.3	11.7

During the week ending December 12 the average maximum temperature was 41, with a maximum of 49 on the 12th; the average minimum was 15, with a minimum of -10° on the 6th. The daily wind movement averaged 6.8 miles an hour. There was 0.01 inch of precipitation.

Livestock interests have benefited by the relatively mild weather that has prevailed this fall and winter, as it has helped to conserve the limited feed supplies. Although forage feeds abound in the North Platte Valley, limited supplies exist in the bordering range country.

Over the country as a whole the number of lambs on feed for market on December 1 was somewhat larger than on the corresponding date last year. Decreases in the number being fed are noted in the western corn belt and in the Great Plains States, particularly Nebraska, South Dakota, and Colorado. The decreases are offset by increases in certain western States, notably Wyoming, Utah, Idaho, and California. In the North Platte Valley the number of lambs being fed this year is from 20 to 25 percent less than last year.

Residents of Scotts Bluff County applied for about 2000 Clark-McNary seedling trees during the first week applications were accepted for the 1937 allotment of trees. Last year 51,200 seedlings were planted in this county

The North Platte Valley Cooperative Poultry Marketing Association has shipped 23 carloads of turkeys as compared with a total of 18 carloads during the entire season of 1935. At least five more carloads will be

Scotts Bluff (cont'd)

shipped by the Association this year. No. 1 turkeys have been selling for 12 to 15 cents a pound live weight.

Yields of Artichoke Varieties - 1936

Variety	Tons per acre
Improved French White	4.4
2 - 21 - 7	3.4
F' - 16	2.7
F' - 58	1.1

Yields of Hybrid Corn Varieties - 1936

Variety	Bushels per acre
Nebraska 238	43.6
Iowa 939	42.4
Funk 220	38.9
Nebraska 252	37.7
Nebraska 231	36.5
Nebraska 501	31.8
Iowa 931	30.6
Krug	28.3
Nebraska 502	22.4
Nebraska 362	17.7

Lionel Harris.

Yuma

During the two-week period ending December 5 the maximum temperature was 78, mean maximum 71, minimum 30, and mean minimum 46°. There was 0.98 inch of precipitation. The rain, with some hail, was a part of a general storm that came from the Gulf of Lower California.

The first killing frost of the fall season occurred on December 2. Some damage to peas was reported in the Imperial Valley. The lettuce, cabbage, and carrot crops on the Yuma project were not injured by the frost.

Agricultural activities on the project at the present time include packing and shipping lettuce, picking and ginning cotton, harvesting grain sorghums, and feeding and pasturing sheep and beef cattle. The four cotton gins operating on the project reported, on December 3, that 8,155 bales had been ginned this season.

The U. S. Geological Survey reports that the discharge of the Colorado River at Grand Canyon for November was 460,000 acre-feet, as compared with 330,000 acre-feet in November 1935. The discharge at Parker below the dam was 342,000 acre-feet. The estimated storage behind Boulder Dam on December 1 was 9,475,000 acre-feet.

Recent station activities have included picking and ginning cotton; preparing land for and planting alfalfa, barley, and winter legumes; planting alfalfa wilt resistant nurseries; general cultivating and irrigating.

Dr. R. W. Harned, Dr. H. M. Brundett, and Mr. T. P. Cassidy, of the Bureau of Entomology, visited the station on November 26. Mr. C. O. Grandfield, of the Division of Forage Crops, has been at the station several days to superintend the planting of the wilt-resistant alfalfa nurseries.

E. G. Noble.

WEEKLY REPORTS

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Vol. XXXIX December 19 and 26, 1936 No. 26

Scotts Bluff

During the week ending December 19 the mean maximum temperature was 47, with an absolute maximum of 60 on December 15; the mean minimum was 23, with an absolute minimum of 16 on December 18. The daily wind movement averaged 6.7 miles an hour. There was .46 inch precipitation.

Station activities during the week included hauling hay, beet tops and manure, and burning weeds.

The station dairy herd has been increased by four cows received from the Valentine substation. The number of lambs on feed in the North Platte Valley as of November 30, 1936, was 334,500, or 203,966 less than 1935.

The Great Western Sugar Company's factory at Gering closed Saturday, December 12.

During the week ending December 26 the mean maximum temperature was 45, with an absolute maximum of 54 on December 25; the mean minimum was 21, with an absolute minimum of 17 on December 26. The daily wind movement averaged 4.5 miles per hour. There was no precipitation. Snowfall is above average in the Sarotoga and Encampment sections of the Pathfinder dam watershed. In view of this fact an adequate irrigation water supply for next season is encouraging.

The exchange of farm land has been moderately active in this section during the past six months. A 160 acre farm in the Mitchell Valley on the south side of the river recently sold for $17,000 and a 147 acre farm in the same area sold for $23,000.

Table potatoes are selling at $1.90 cwt., and certified seed potatoes at $2.90 cwt., culls and small potatoes are being marketed at $1.10 to $1.45 cwt.

Dr. J. C. Drake, Iowa state entomologist, reports that the present outlook regarding the grasshopper situation in the corn belt states for 1937 is potentially the worst in history.

Lionel Harris.

Huntley

During the two-week period ending December 26 the absolute maximum temperature was 60 and the absolute minimum 11. There was .08 inch precipitation in the form of snow.

Weather conditions continued favorable during this period. Since very little pen feeding of livestock has been necessary, it has been possible to utilize field pastures and thus conserve the short supplies of stored feed.

Huntley (cont'd)

The processing of the year's beet crop has been completed. The yield of beets on the Huntley Project was reported to average 13.5 tons per acre on the 5,000 acres cropped. In the entire Billings factory district the average yield was 12.2 tons per acre. Yields were adversely influenced by grasshopper injury and unfavorable weather conditions. However, very little damage was reported in the area from curly-top. Apparently, conditions during the preceding winter were unfavorable to the wintering over of the sugar beet leafhopper and the damage from curly-top disorder was much less than in 1935.

A test of three curly-top resistant selections of beets in 1936 indicate that these strains probably yield lower than imported commercial beet seed in years of low or no leafhopper infestation. The yields obtained in this test were as follows:

Selection	Yield - Tons per Acre	
U. S. No. 1	10.52	Average 4 Plots*
U. S. No. 33	10.62	" 4 "
U. S. No. 34	11.71	" 4 "
G. W. Sugar Co. (Check)	12.99	" 6 "

*Plots 1/12 acre in size.

Dan Hansen.

Newlands

During the two-week period ending December 26 the mean maximum temperature was 47.8, with an absolute maximum of 58; the mean minimum was 21.3, with an absolute minimum of 8. The mean temperature was 34.6. The wind velocity averaged 2.17 miles an hour. There was .84 inch precipitation.

The unusually dry fall continued until December 24, when the first snow of the season fell. Reports from the high Sierras indicate a very heavy fall of snow.

The renovation of the station buildings and grounds should be completed in about two weeks. At the present time the painting of the exterior of all buildings, both federal and state, has been completed. Other work at the station has included the removal of 500 feet of hedges, several large trees, and old water pipes. The foundation has been laid for a new sump for lawn irrigation purposes.

E. W. Knight.